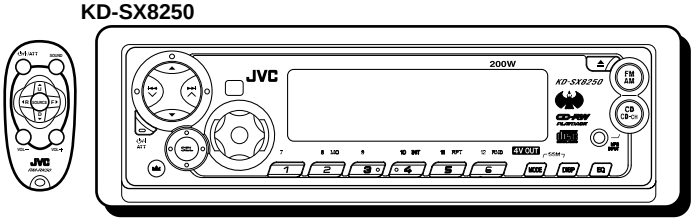
JVC

SERVICE MANUAL

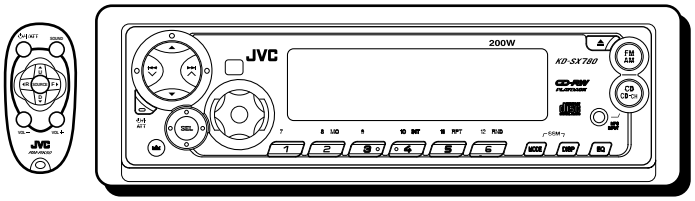
CD RECEIVER

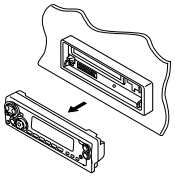
KD-SX8250/KD-SX780

KD-SX8250



KD-SX780





CD-RW PLAYBACK

COMPACT disc DIGITAL AUDIO

Difference point	KD-SX8250	KD-SX780
SUBWOOFER	○	×
LINE-OUT	4V	2V
DIMMER	○	×
FINDER	SILVER	BLACK

Area Suffix

J ------- Northern America

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No.49690
Feb. 2002

Safety precaution

⚠ ***CAUTION*** **Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

⚠ ***CAUTION*** **Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.**

Preventing static electricity

Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

1.1. Grounding to prevent damage by static electricity

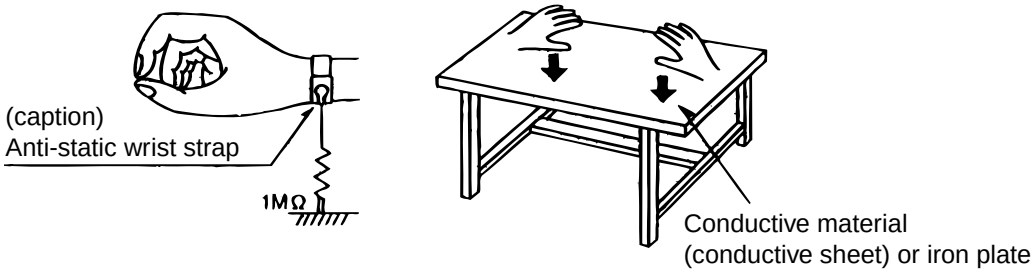
Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as DVD players. Be careful to use proper grounding in the area where repairs are being performed.

1.1.1. Ground the workbench

1. Ground the workbench by laying conductive material (such as a conductive sheet) or an iron plate over it before placing the traverse unit (optical pickup) on it.

1.1.2. Ground yourself

1. Use an anti-static wrist strap to release any static electricity built up in your body.



1.1.3. Handling the optical pickup

1. In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)

2. Do not use a tester to check the condition of the laser diode in the optical pickup. The tester's internal power source can easily destroy the laser diode.

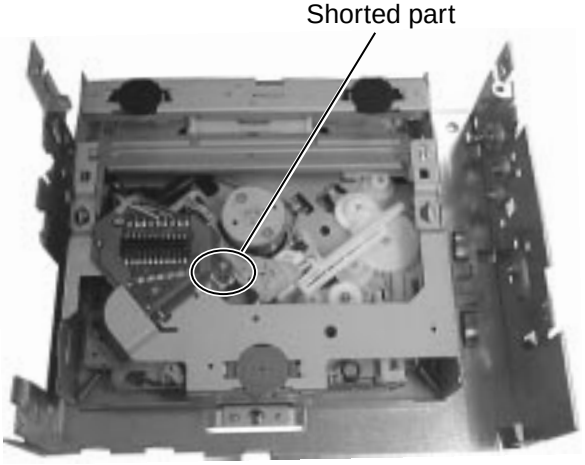
1.2. Handling the traverse unit (optical pickup)

1. Do not subject the traverse unit (optical pickup) to strong shocks, as it is a sensitive, complex unit.

2. Cut off the shorted part of the flexible cable using nippers, etc. after replacing the optical pickup. For specific details, refer to the replacement procedure in the text. Remove the anti-static pin when replacing the traverse unit. Be careful not to take too long a time when attaching it to the connector.

3. Handle the flexible cable carefully as it may break when subjected to strong force.

4. It is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it



Disassembly method

■ Removing the front panel unit

(See Fig.1)

1. Press the release switch and remove the front panel unit in the direction of the arrow.

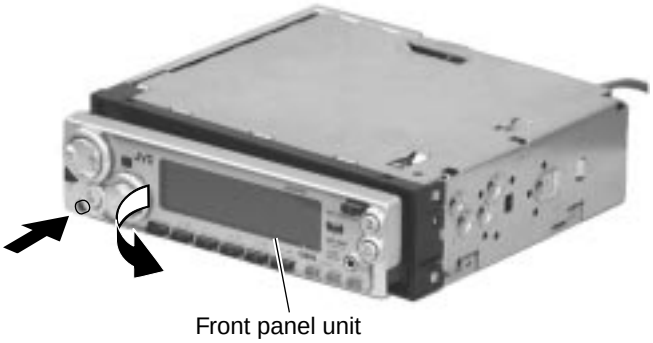


Fig.1

■ Removing the front chassis

(See Fig.2 to 4)

1. Remove the two screws **A** attaching the front chassis.
2. Remove the two screws **B** on each side of the body.
3. Release the two joints **a** and the two joints **b** on the sides. Release the two joints **c** at the bottom and remove the front chassis toward the front.

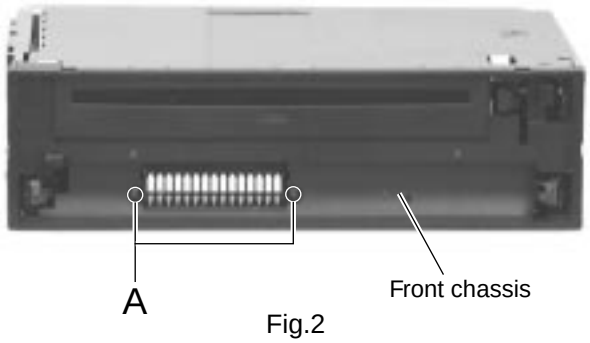


Fig.2

Fig.4

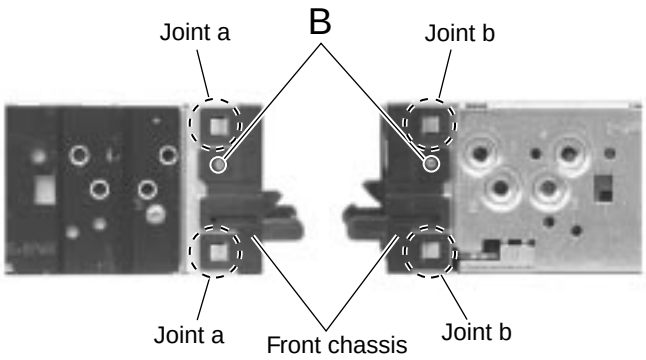


Fig. 3

■ Removing the heat sink (See Fig.5)

1. Remove the four screws **B** attaching the heat sink on the left side of the body, and remove the heat sink.

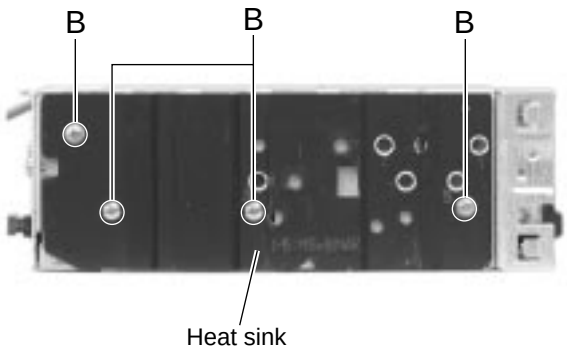


Fig. 5

■ Removing the bottom cover (See Fig.6)

・ Prior to performing the following procedure, remove the front chassis and the heat sink.

1. Turn the body upside down.

2. Insert a screwdriver to the two joints **d** and two joints **e** on both sides of the body and the joint **f** on the back of the body, then detach the bottom cover from the body.

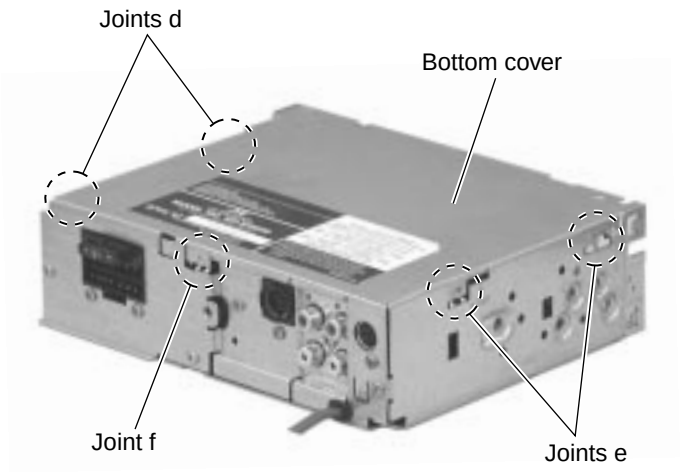


Fig. 6

■ Removing the rear panel (See Fig.7)

・ Prior to performing the following procedure, remove the front chassis, the heat sink and bottom cover.

1. Remove the nine screws **C** attaching the rear panel and one screw **D** attaching the pine jack on the back of the body.

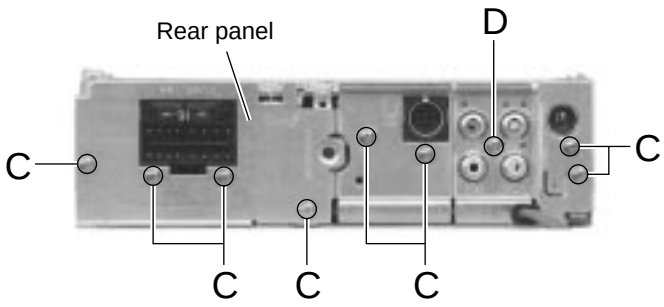


Fig. 7

■ Removing the main amplifier board assembly (See Fig.8)

・ Prior to performing the following procedure, remove the front chassis, the heat sink, bottom cover and the rear panel.

1. Remove the two screws **E** attaching the main amplifier board assembly on the top cover.

2. Disconnect connector CN501 on the main amplifier board assembly from the cassette mechanism assembly.

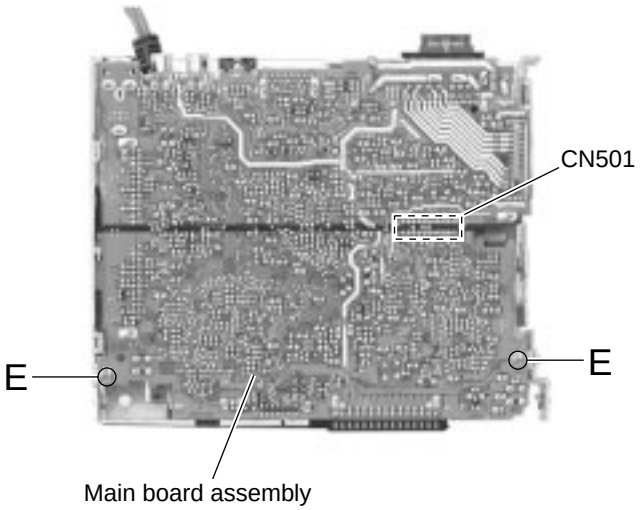


Fig. 8

■ Removing the CD mechanism assembly (See Fig.9)

・ Prior to performing the following procedure, remove the front chassis, the heat sink, bottom cover and the main amplifier board assembly.

1. Remove the three screws **F** attaching the cassette mechanism assembly from the top cover.

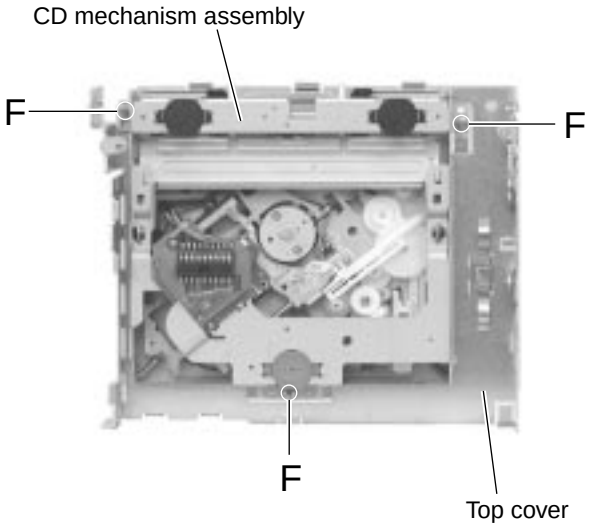


Fig. 9

■ Removing the (LCD & key) control switch board (See Fig.10 to 12)

・ Prior to performing the following procedure, remove the front panel assembly.

1. Remove the four screws **G** attaching the rear cover on the back of the front panel assembly.

2. Unjoint the nine joints **g** with the front panel and the rear cover.

3. Remove the control switch board on the back of the front panel.

Fig. 10

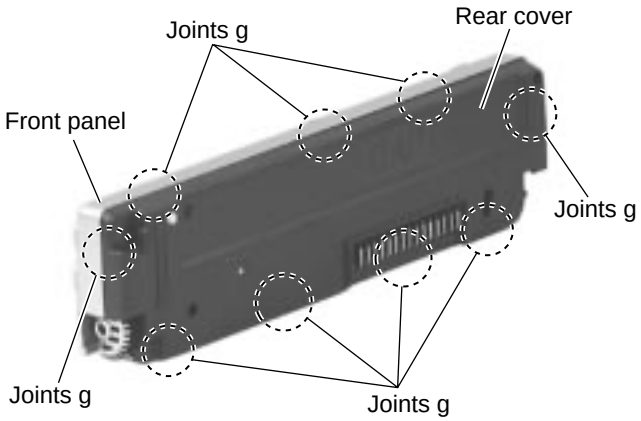


Fig. 11

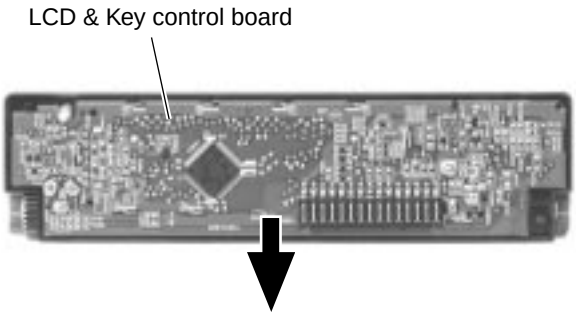


Fig. 12

■ Removing the top cover

(See Fig.1 and 2)

1. Remove the two screws **A** on each side of the body.
2. Lift the front side of the top cover and move the cover backward to release the two joints **a**.

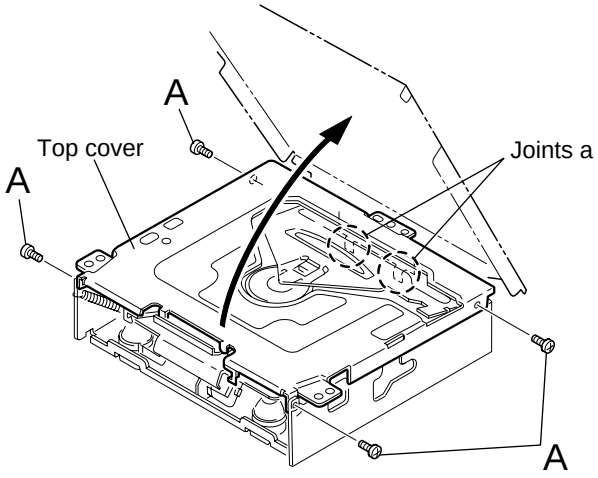


Fig.1

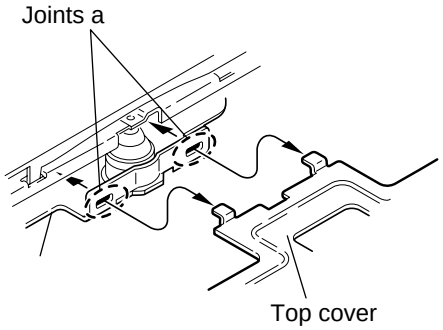


Fig.2

■ Removing the connector board

(See Fig.3 to 5)

> CAUTION: Before disconnecting the flexible wire from the pickup, solder the short-circuit point on the pickup. No observance of this instruction may cause damage of the pickup.

1. Remove the screw **B** fixing the connector board.
2. Solder the short-circuit point on the connector board.

   Disconnect the flexible wire from the pickup.
3. Move the connector board in the direction of the arrow to release the two joints **b**.
4. Unsolder the wire on the connector board if necessary.

> CAUTION: Unsolder the short-circuit point after reassembling.

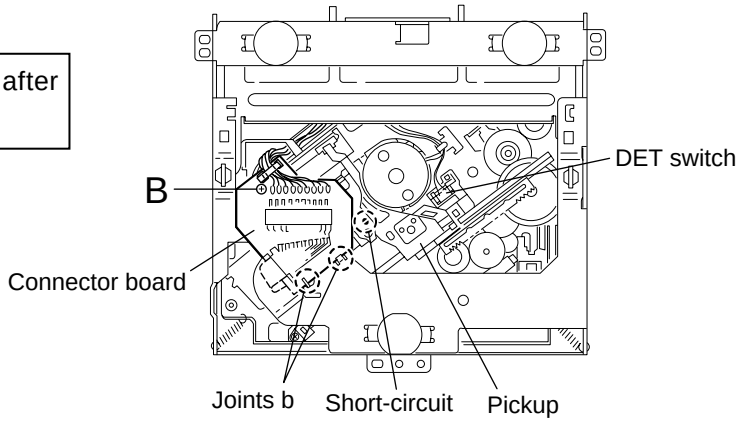


Fig.3

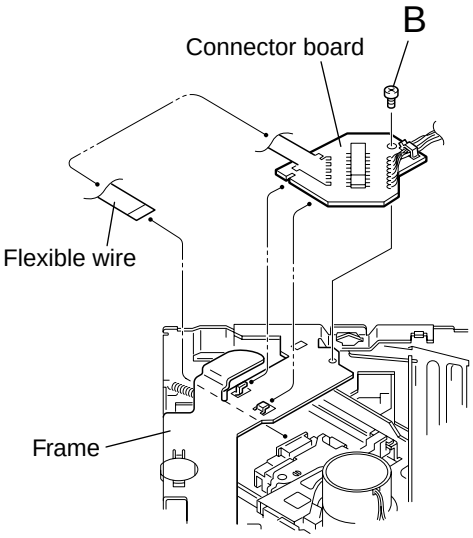


Fig.5

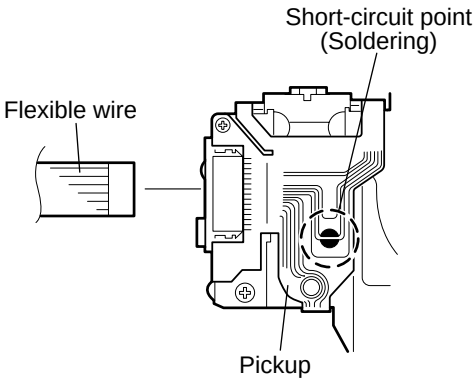


Fig.4

■ Removing the DET switch (See Fig.3 and 6)

1. Extend the two tabs **c** of the feed sw. holder and pull out the switch.

2. Unsolder the DET switch wire if necessary.

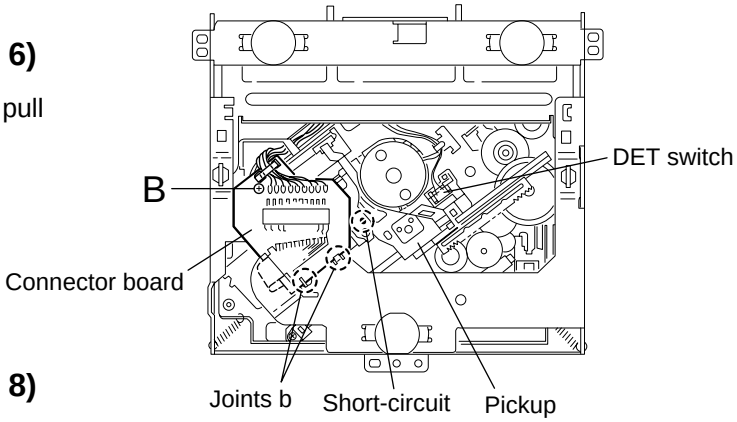


Fig.3

■ Removing the chassis unit (See Fig.7 and 8)

・ Prior to performing the following procedure, remove the top cover and the connector board.

1. Remove the two suspension springs (L) and (R) attaching the chassis unit to the frame.

CAUTION: The shape of the suspension spring (L) and (R) are different. Handle them with care.

CAUTION: When reassembling, make sure that the three shafts on the underside of the chassis unit are inserted to the dampers certainly.

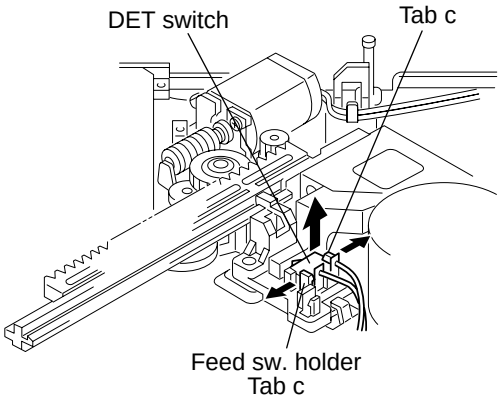


Fig.6

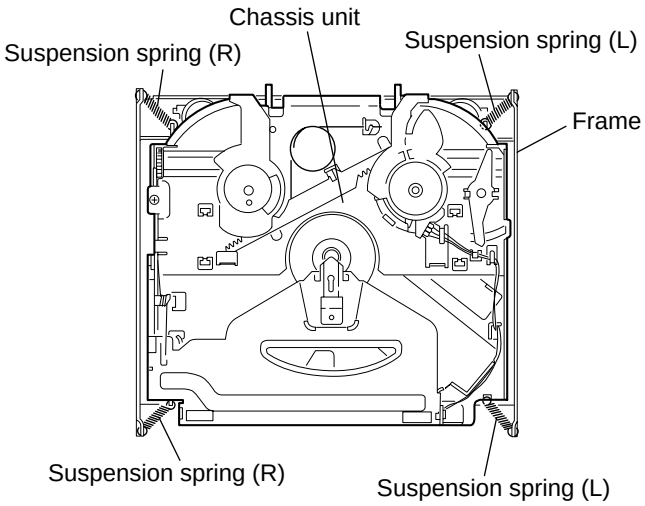


Fig.7

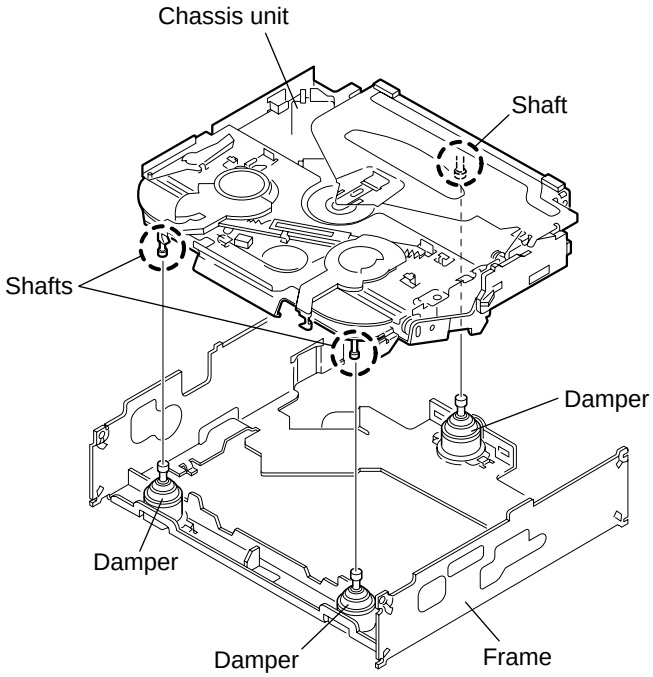


Fig.8

■Removing the clamper assembly (See Fig.9 and 10)

・ Prior to performing the following procedure, remove the top cover.

1. Remove the clamper arm spring.

2. Move the clamper assembly in the direction of the arrow to release the two joints **d**.

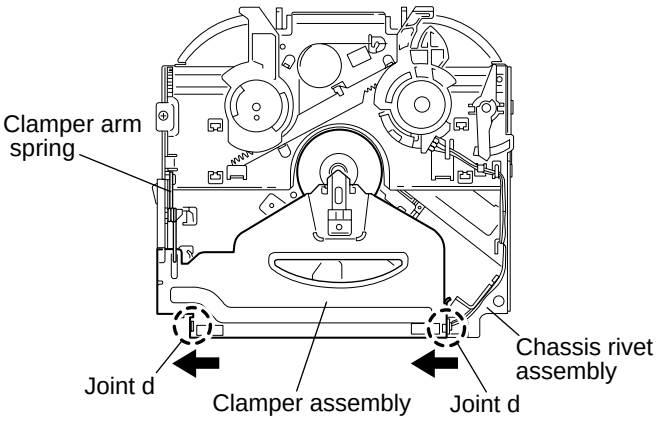


Fig.9

■Removing the loading / feed motor assembly (See Fig.11 and 12)

・ Prior to performing the following procedure, remove the top cover, the connector board and the chassis unit.

1. Remove the screw **C** and move the loading / feed motor assembly in the direction of the arrow to remove it from the chassis rivet assembly.

2. Disconnect the wire from the loading / feed motor assembly if necessary.

CAUTION: When reassembling, connect the wire from the loading / feed motor assembly to the flame as shown in Fig.11.

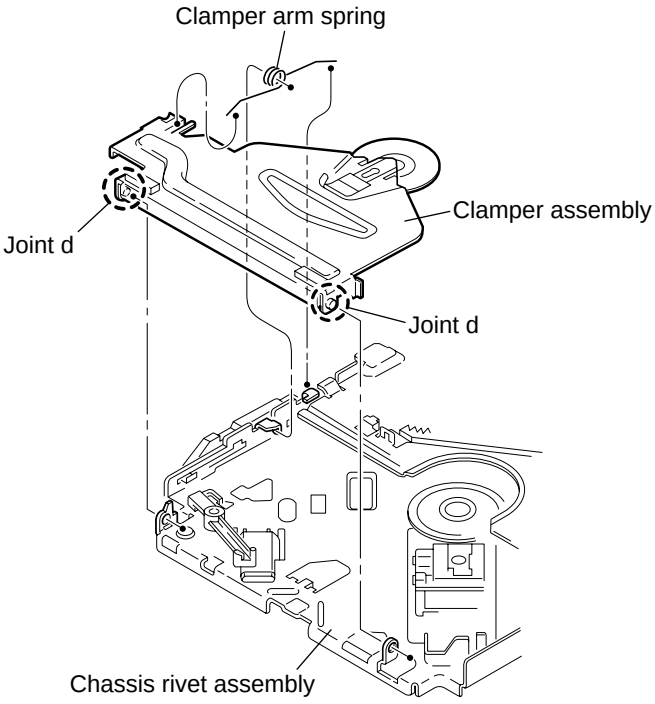


Fig.10

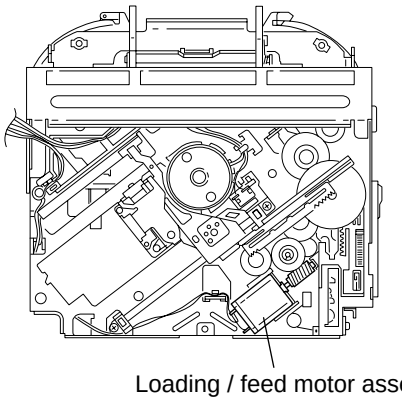


Fig.11

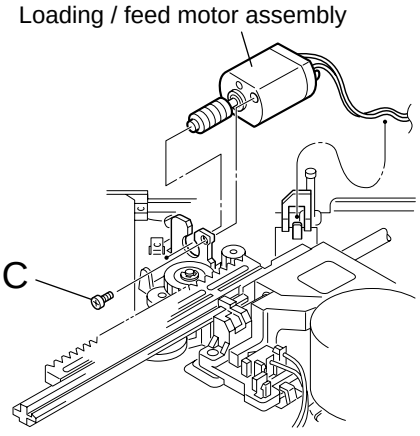


Fig.12

■ Removing the pickup unit

(See Fig.13 to 17)

- Prior to performing the following procedure, remove the top cover, the connector board and the chassis unit.

1. Remove the screw **D** and pull out the pu. shaft holder from the shaft.
2. Remove the screw **E** attaching the feed sw. holder.
3. Move the part **e** of the pickup unit upward with the shaft and the feed sw. holder, then release the joint **f** of the feed sw. holder in the direction of the arrow. The joint **g** of the pickup unit and the feed rack is released, and the feed sw. holder comes off.
4. Remove the shaft from the pickup unit.
5. Remove the screw **F** attaching the feed rack to the pickup unit.

■ Reattaching the pickup unit

(See Fig.13 to 16)

1. Reattach the feed rack to the pickup unit using the screw **F**.
2. Reattach the feed sw. holder to the feed rack while setting the joint tab **g** to the slot of the feed rack and setting the part **f** of the feed rack to the switch of the feed sw. holder correctly.
3. As the feed sw. holder is temporarily attached to the pickup unit, set to the gear of the joint **g** and to the bending part of the chassis (joint **h**) at a time.

> CAUTION: Make sure that the part **i** on the underside of the feed rack is certainly inserted to the slot **j** of the change lock lever.

4. Reattach the feed sw. holder using the screw **E**.
5. Reattach the shaft to the pickup unit. Reattach the pu. shaft holder to the shaft using the screw **D**.

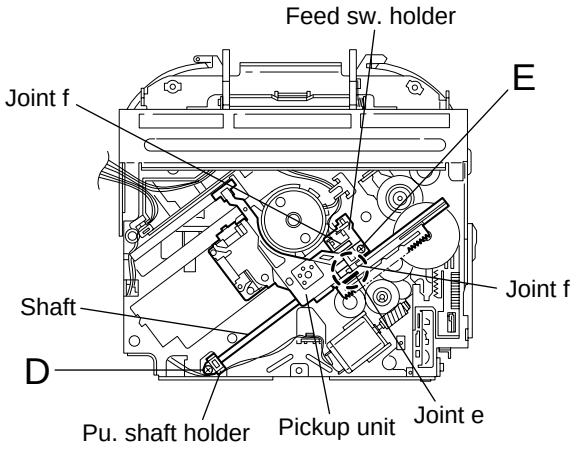


Fig.13

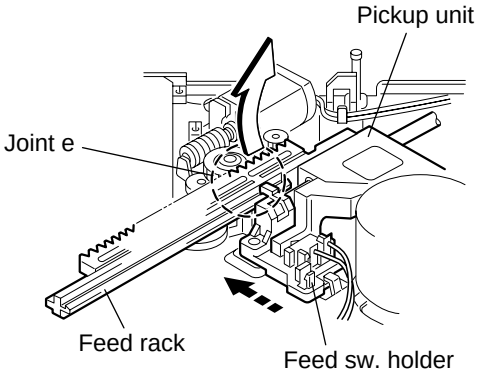


Fig.14

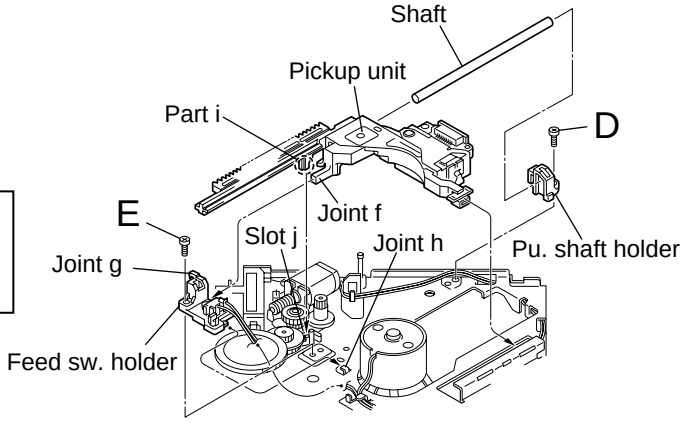


Fig.15

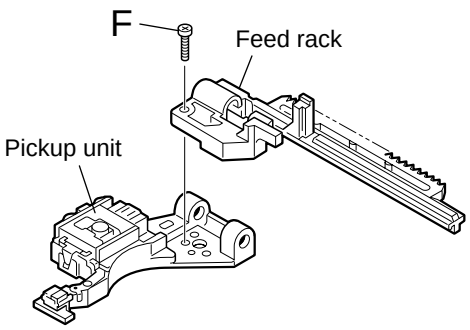


Fig.16

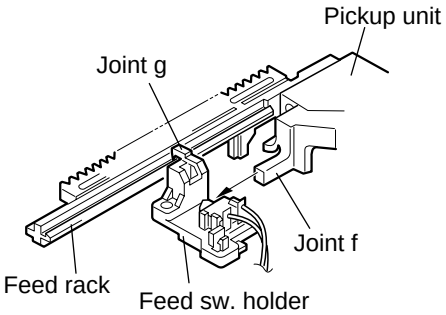


Fig.17

■Removing the trigger arm
(See Fig.18 and 19)

・ Prior to performing the following procedure, remove the top cover, the connector board and the clamper unit.

1. Turn the trigger arm in the direction of the arrow to release the joint **k** and pull out upward.

CAUTION: When reassembling, insert the part **l** and **m** of the trigger arm into the part **n** and **o** at the slot of the chassis rivet assembly respectively and join the joint **k** at a time.

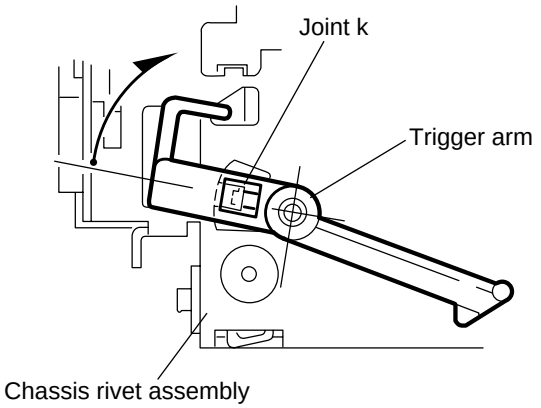


Fig.18

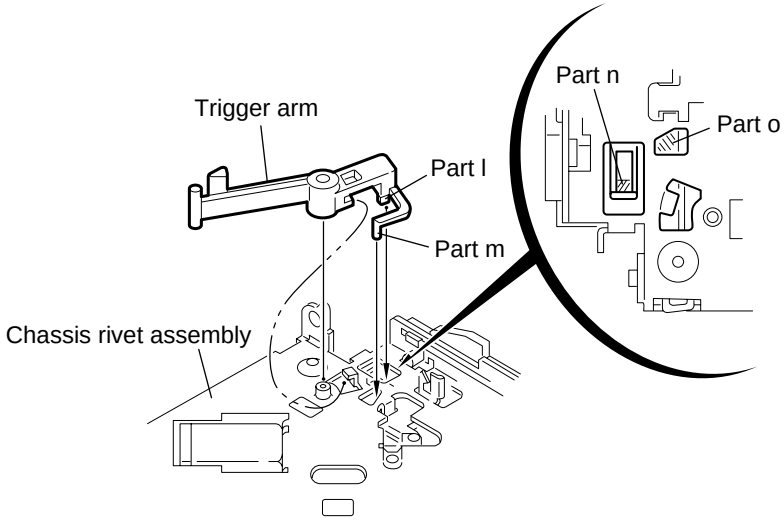


Fig.19

■Removing the top plate assembly
(See Fig.20)

・ Prior to performing the following procedure, remove the top cover, the connector board, the chassis unit, and the clamper assembly.

1. Remove the screw **H**.

2. Move the top plate assembly in the direction of the arrow to release the two joints **p**.

3. Unsolder the wire marked **q** if necessary.

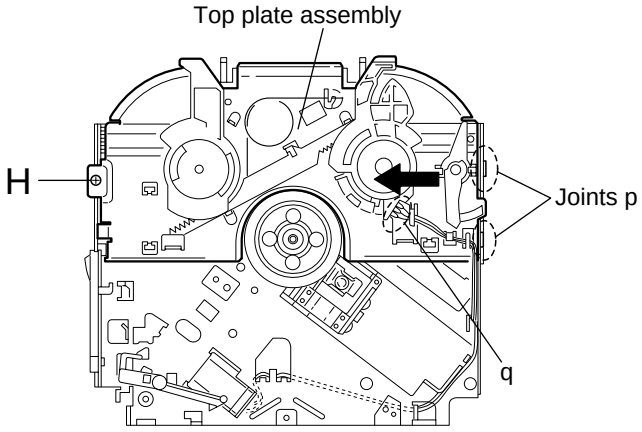


Fig.20

■ Removing the select arm (L) / select lock arm (See Fig.21 and 22)

- Prior to performing the following procedure, remove the top plate assembly.

1. Bring up the select arm (L) to release from the link plate (joint **r**) and turn in the direction of the arrow to release the joint **s**.

2. Unsolder the wire of the select arm (L) marked **q** if necessary.

3. Turn the select lock arm in the direction of the arrow to release the two joints **t**.

   The select lock arm spring comes off the select lock arm at the same time.

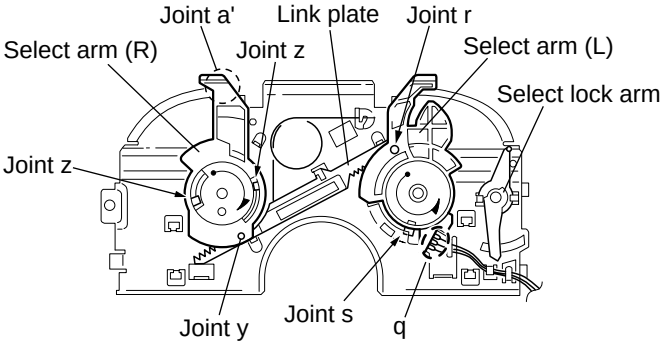


Fig.21

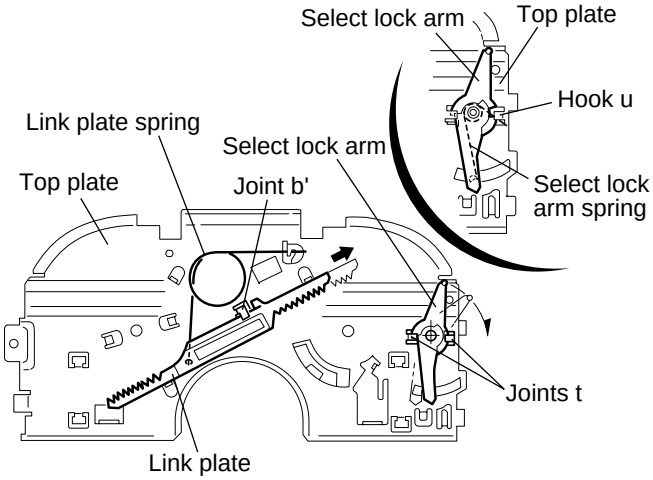


Fig.22

■ Reassembling the select arm (L) / select lock arm (See Fig.23 to 25)

REFERENCE: Reverse the above removing procedure.

1. Reattach the select lock arm spring to the top plate and set the shorter end of the select lock arm spring to the hook **u** on the top plate.

2. Set the other longer end of the select lock arm spring to the boss **v** on the underside of the select lock arm, and join the select lock arm to the slots (joint **t**). Turn the select lock arm as shown in the figure.

3. Reattach the select arm (L) while setting the part **r** to the first peak of the link plate gear, and join the joint **s**.

CAUTION: When reattaching the select arm (L), check if the points **w** and **x** are correctly fitted and if each part operates properly.

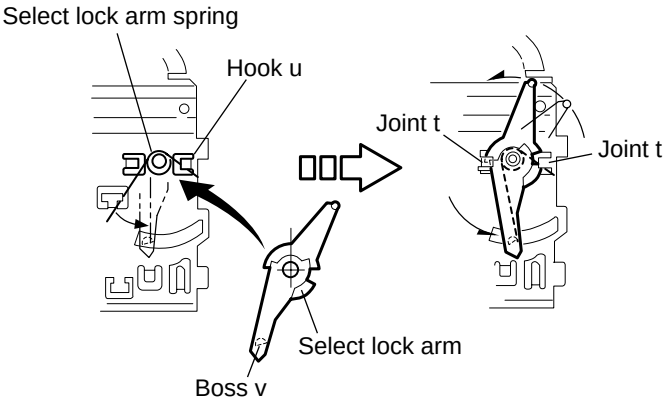


Fig.23

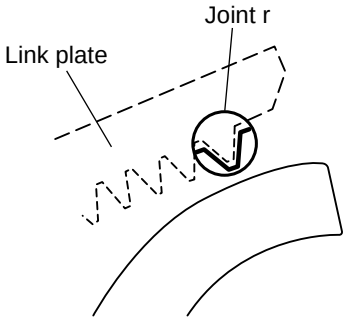


Fig.24

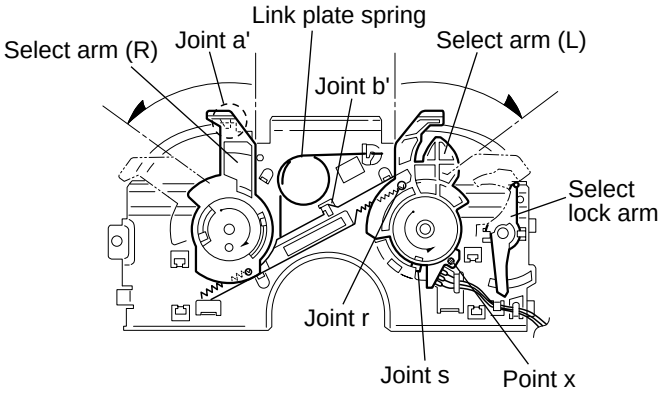


Fig.25

■Removing the select arm (R) / link plate (See Fig.21 and 22)

・ Prior to performing the following procedure, remove the top plate assembly.

1. Bring up the select arm (R) to release from the link plate (joint **y**) and turn as shown in the figure to release the two joints **z** and joint **a'**.

2. Move the link plate in the direction of the arrow to release the joint **b'**. Remove the link plate spring at the same time.

REFERENCE: Before removing the link plate, remove the select arm (L).

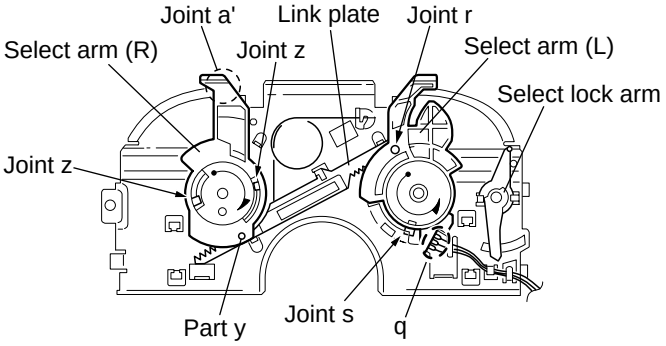


Fig.21

■Reattaching the Select arm (R) / link plate (See Fig.25 and 26)

REFERENCE: Reverse the above removing procedure.

1. Reattach the link plate spring.

2. Reattach the link plate to the link plate spring while joining them at joint **b'**.

3. Reattach the part **y** of the select arm (R) to the first peak of the link plate while joining the two joints **z** with the slots. Then turn the select arm (R) as shown in the figure. The top plate is joined to the joint **a'**.

CAUTION: When reattaching the select arm (R), check if the part **c'** is correctly fitted and if each part operates properly.

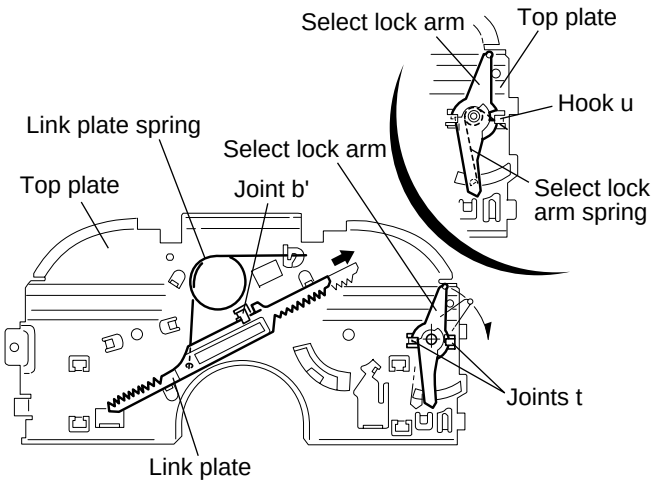


Fig.22

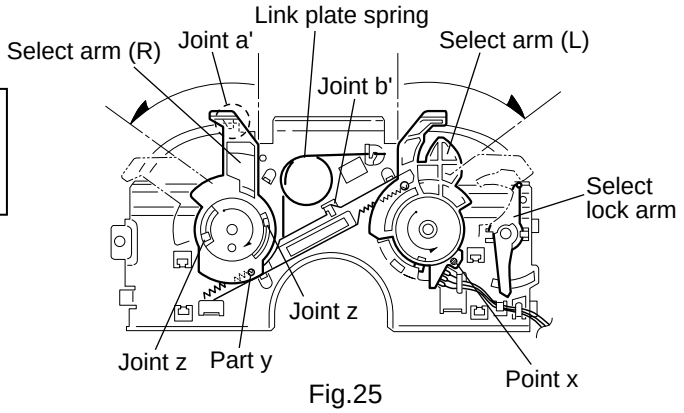


Fig.25

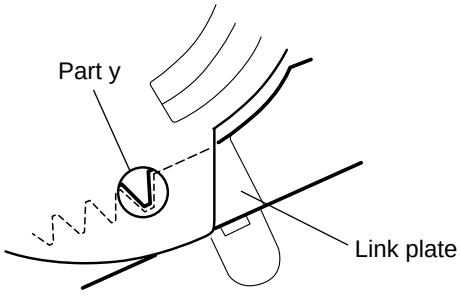


Fig.26

■ Removing the loading roller assembly (See Fig.27 to 29)

- Prior to performing the following procedure, remove the clamper assembly and the top plate assembly.

1. Push inward the loading roller assembly on the gear side and detach it upward from the slot of the joint **d'** of the lock arm rivet assembly.

   Detach the loading roller assembly from the slot of the joint **e'** of the lock arm rivet assembly.

   The roller guide comes off the gear section of the loading roller assembly.

   Remove the roller guide and the washer from the shaft of the loading roller assembly.

2. Remove the screw **I** attaching the lock arm rivet assembly.

3. Push the shaft at the joint **f'** of the lock arm rivet assembly inward to release the lock arm rivet assembly from the slot of the slide plate. Extend the lock arm rivet assembly outward and release the joint **g'** from the boss of the chassis rivet assembly. The roller guide springs on both sides come off.

CAUTION: When reassembling, reattach the left and right roller guide springs to the lock arm rivet assembly before reattaching the lock arm rivet assembly to the chassis rivet assembly. Make sure to fit the part **h'** of the roller guide spring (L) inside of the roller guide (Refer to Fig.30).

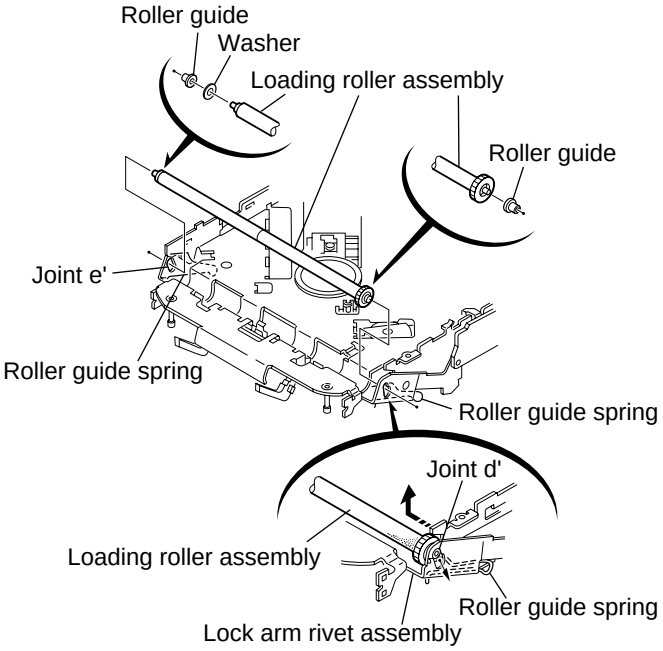


Fig.27

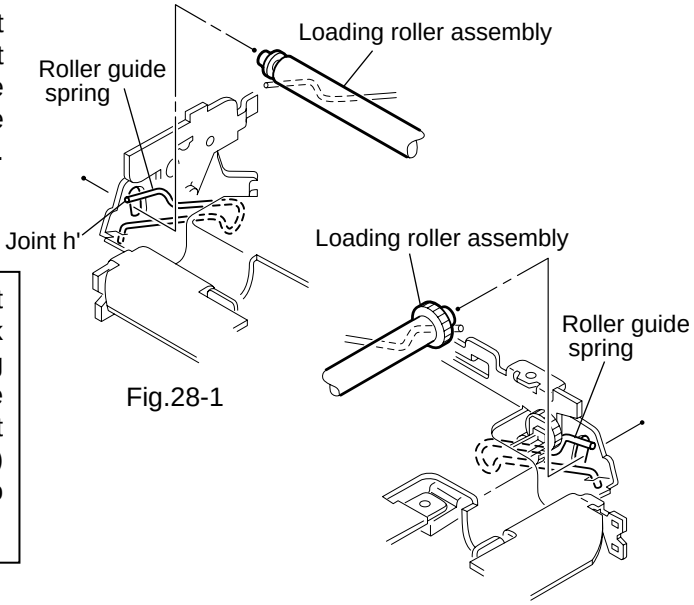


Fig.28-1

Fig.28-2

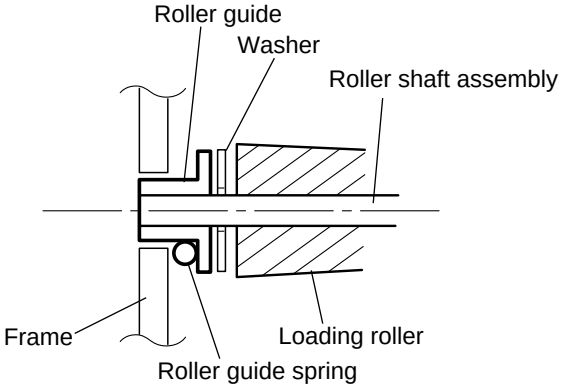


Fig.30

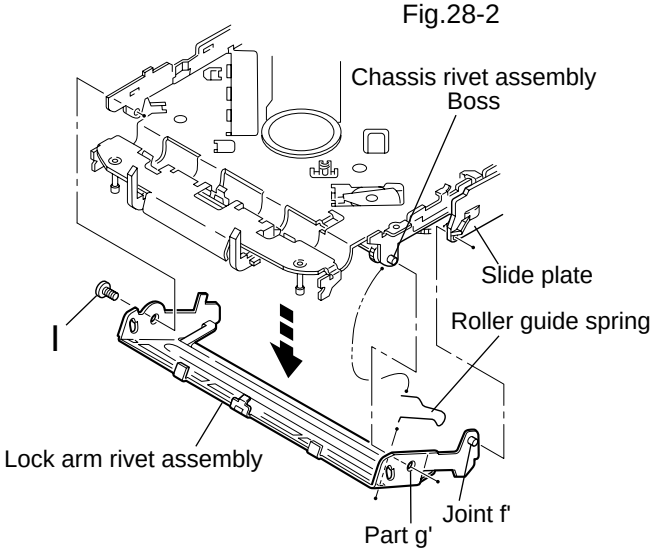


Fig.29

■Removing the loading gear (5), (6) and (7) (See Fig.31 and 32)

・ Prior to performing the following procedure, remove the top cover, the chassis unit and the top plate assembly.

1. Remove the screw **J** attaching the loading gear bracket. The loading gear (6) and (7) come off the loading gear bracket.

2. Pull out the loading gear (5).

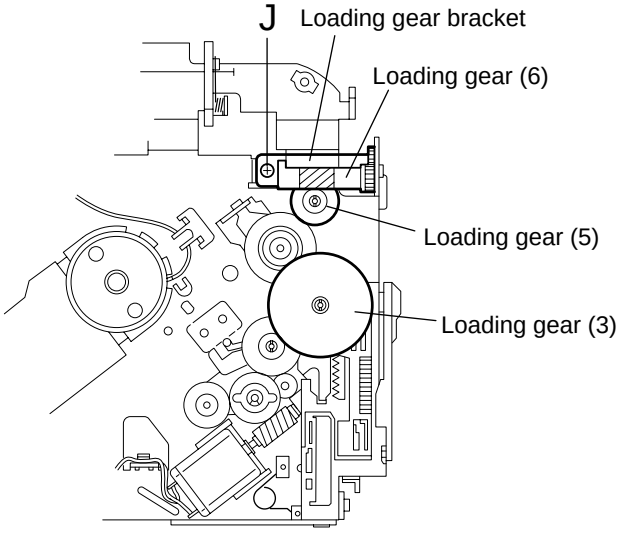


Fig.31

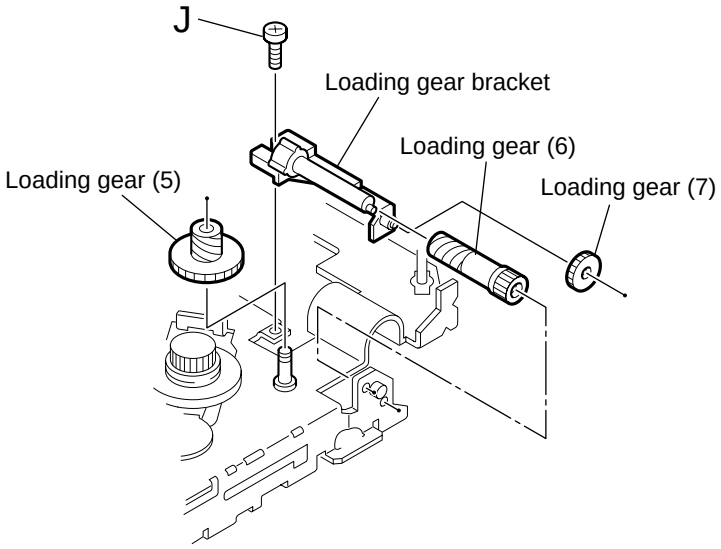


Fig.32

■ Removing the gears (See Fig.33 to 36)

- Prior to performing the following procedure, remove the top cover, the chassis unit, the top plate assembly and the pickup unit.

1. Pull out the feed gear.
2. Move the loading plate assembly in the direction of the arrow to release the slide plate from the two slots **j'** of the chassis rivet assembly.
3. Detach the loading plate assembly upward from the chassis rivet assembly while releasing the joint **k'**. Remove the slide hook and the loading plate spring from the loading plate assembly.
4. Pull out the loading gear (2) and remove the change lock lever.
5. Remove the E-washer and the washer attaching the changer gear (2).
6. The changer gear (2), the changer gear spring and the adjusting washer come off.
7. Remove the loading gear (1).
8. Move the hang plate rivet assembly in the direction of the arrow to release from the three shafts of the chassis rivet assembly upward.
9. Detach the loading gear plate rivet assembly from the shaft of the chassis rivet assembly upward while releasing the joint **l'**.
10. Pull out the loading gear (4).

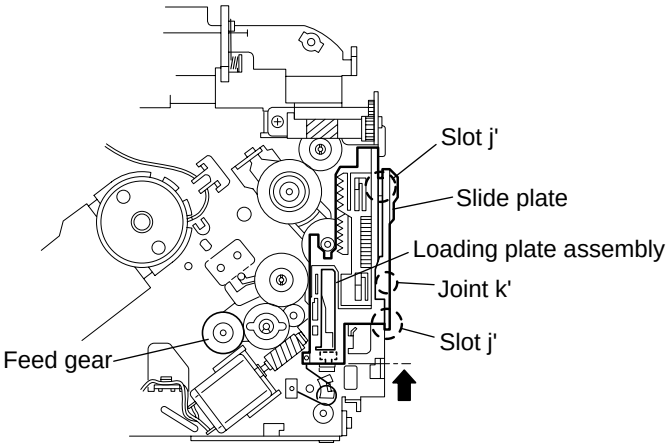


Fig.33

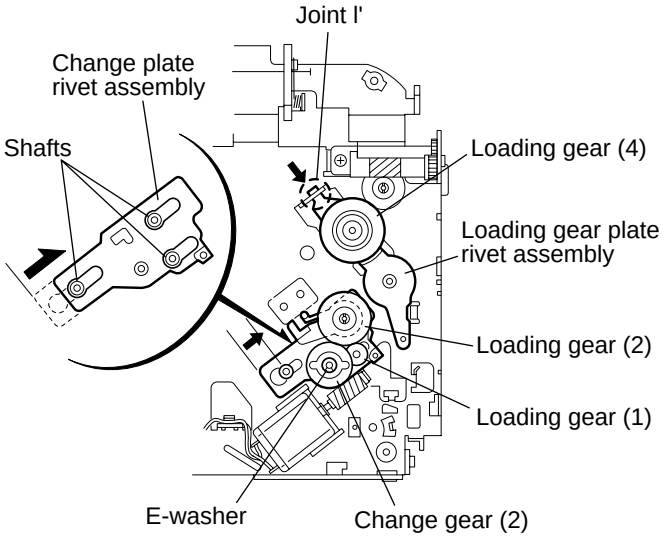


Fig.34

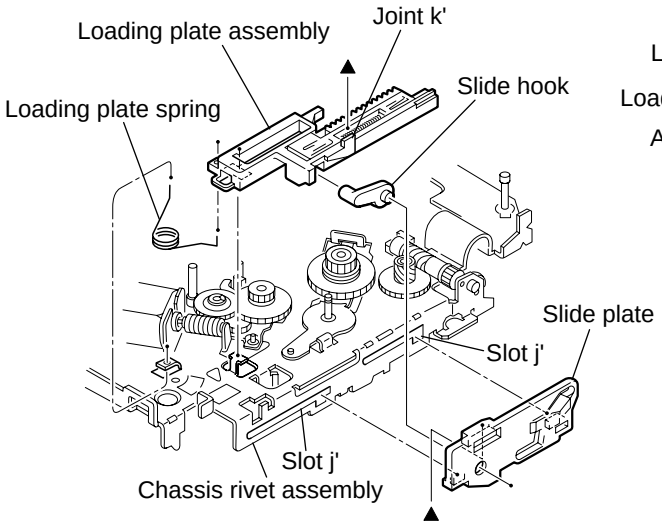


Fig.35

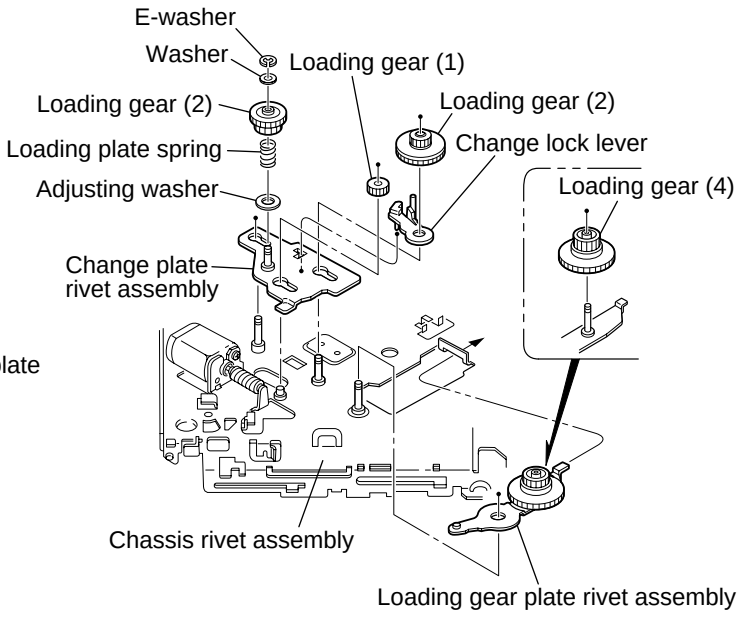


Fig.36

■ Removing the turn table / spindle motor (See Fig.37 and 38)

・ Prior to performing the following procedure, remove the top cover, the connector assembly and the chassis / clamper assembly.

1. Remove the two screws **K** attaching the spindle motor assembly through the slot of the turn table on top of the body.

2. Unsolder the wire on the connector board if necessary.

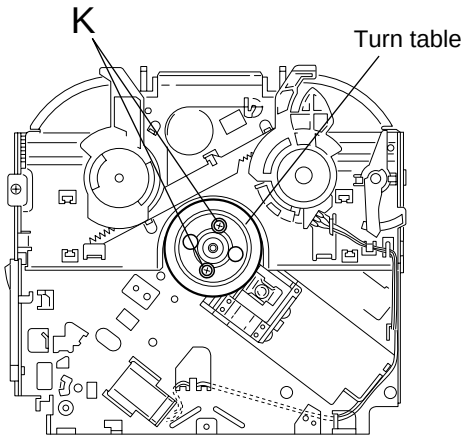


Fig.37

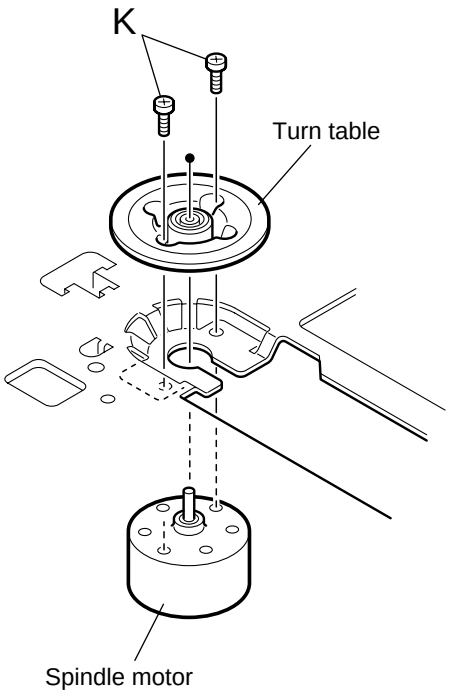


Fig.38

Adjustment method

■ Test instruments required adjustment
1.Digital oscilloscope (100MHz)
2.AM Standard signal generator
3.FM Standard signal generator
4.Stereo modulator
5.Electric voltmeter
6.Digital tester
7.T c
8.T
9.Extension cable for check
EXTGS004-22P

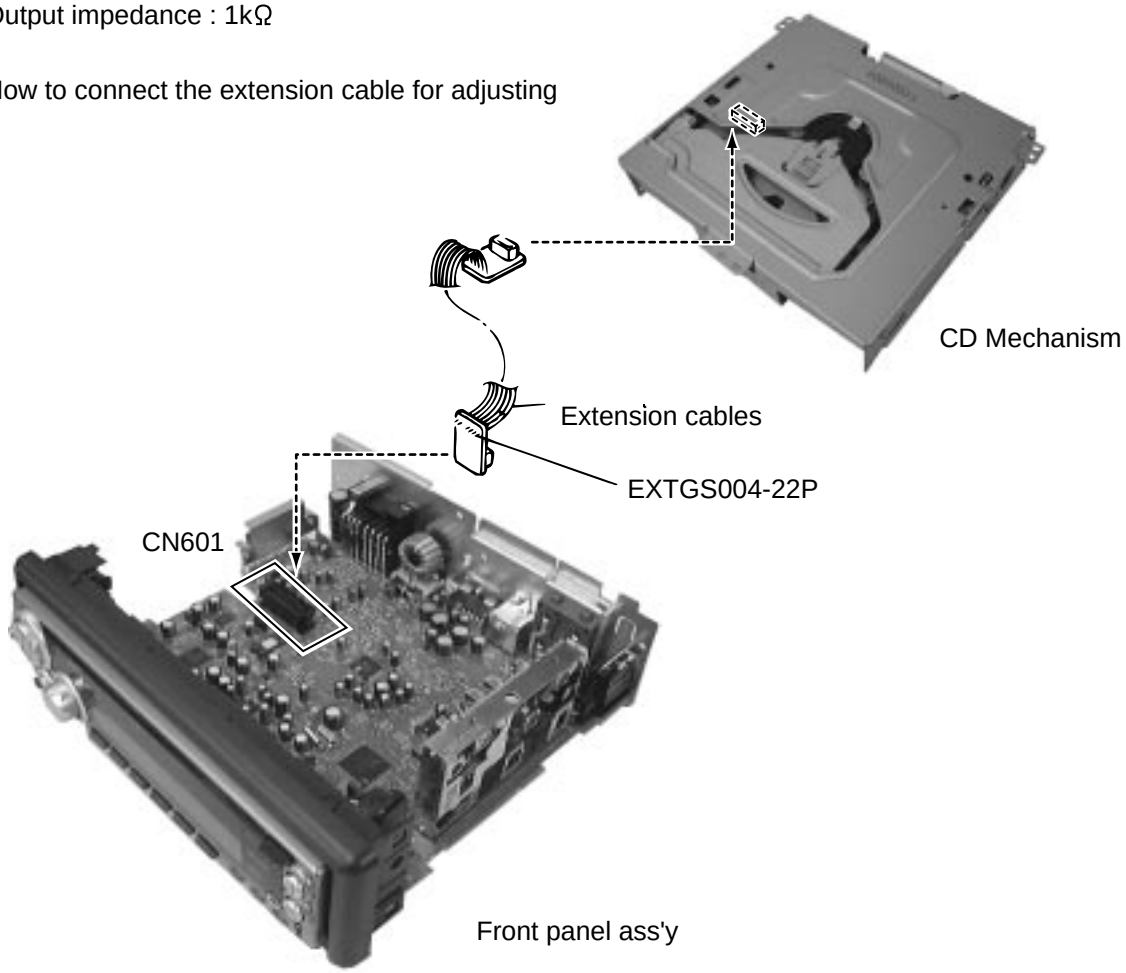
■ Standard volume position
Balance and Bass & Treble volume : Indication "0"
Loudness : OFF

■ Frequency Band
FM 1 - 3 87.5MHz - 107.9 MHz
AM 530kHz - 1710kHz

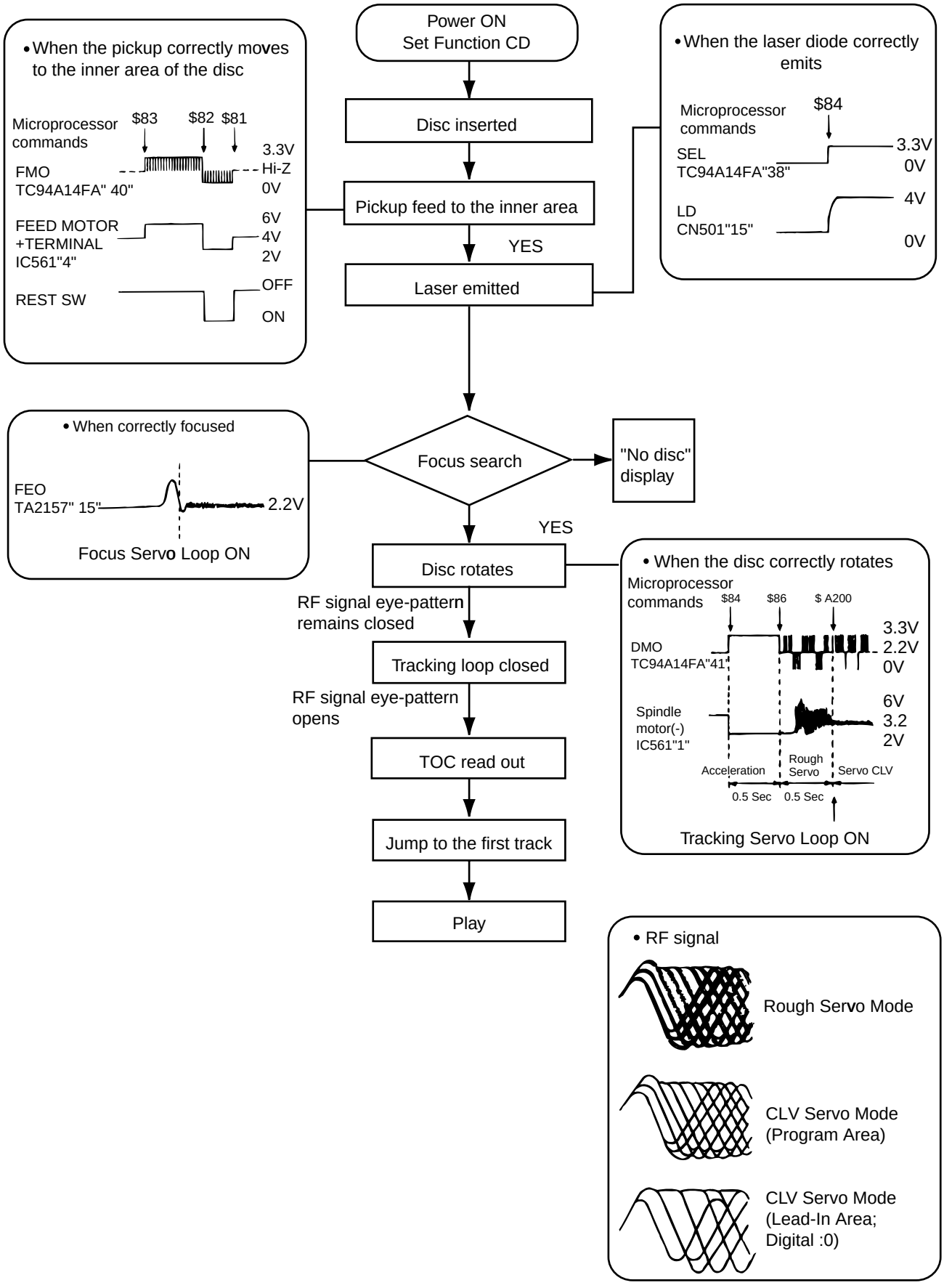
■ Dummy load
Exclusive dummy load should be used for AM, and FM.
For FM dummy load, there is a loss of 6dB between SSG output and antenna input. The loss of 6dB need not be considered since direct reading of figures are applied in this working standard.

■ Standard measuring conditions
Power supply voltage DC 14.4V(11V to 16V allowance)
Load impedance 4Ω(4 Ω to 8 Ωallowance)
Line-out Level/Impedance
KD-SX8250 : 4.0 V/20kΩ load(full scale)
KD-SX780 : 2.0 V/20kΩ load(full scale)
Output impedance : 1kΩ

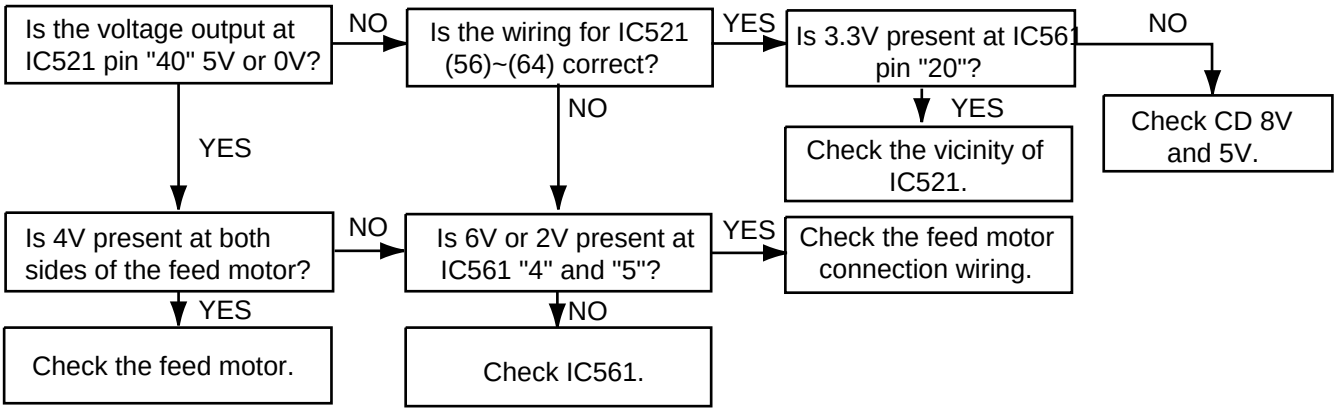
■ How to connect the extension cable for adjusting



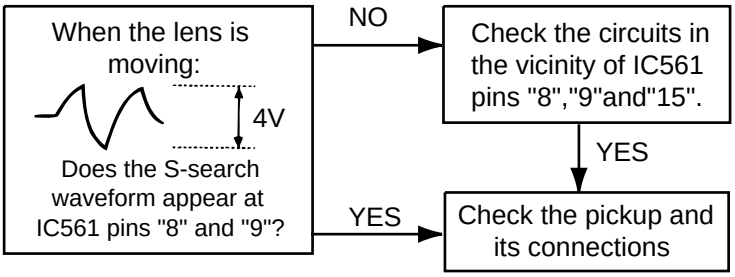
Flow of functional operation unit TOC read



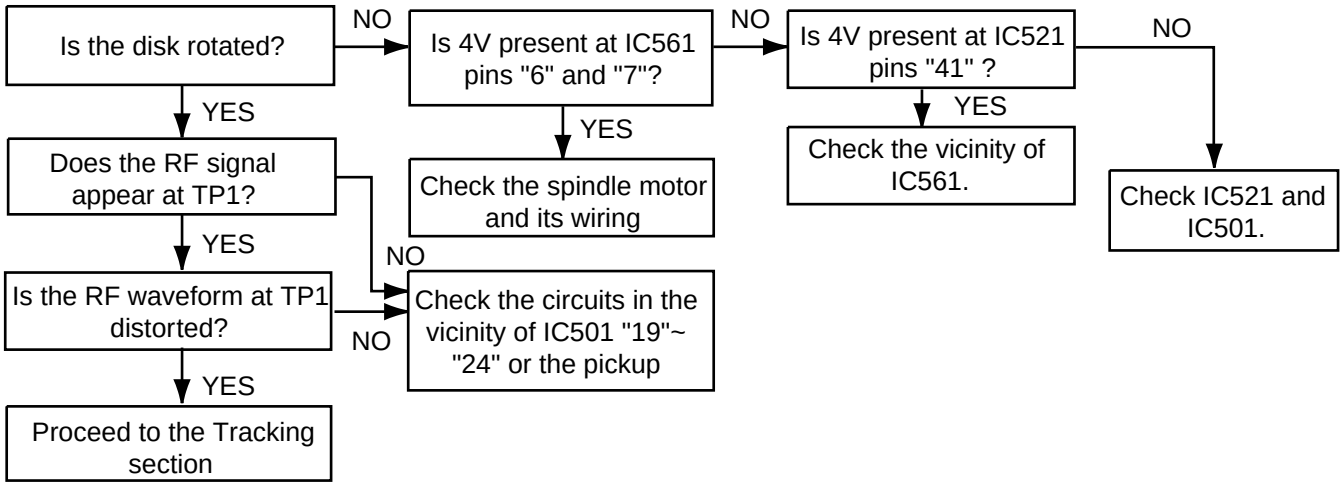
■Feed section



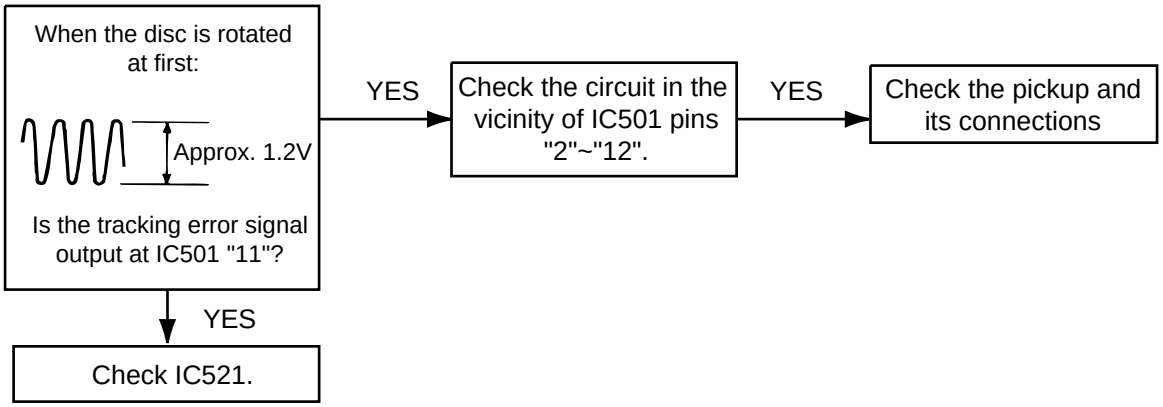
■Focus section


When the lens is moving:
4V
Does the S-search waveform appear at IC561 pins "8" and "9"?
NO
Check the circuits in the vicinity of IC561 pins "8","9"and"15".
YES
YES
Check the pickup and its connections

■Spindle section


Is the disk rotated?
NO
Is 4V present at IC561 pins "6" and "7"?
NO
Is 4V present at IC521 pins "41" ?
NO
YES
YES
Check the vicinity of IC561.
Check IC521 and IC501.
YES
Check the spindle motor and its wiring
Does the RF signal appear at TP1?
YES
NO
Is the RF waveform at TP1 distorted?
Check the circuits in the vicinity of IC501 "19"~ "24" or the pickup
NO
YES
Proceed to the Tracking section

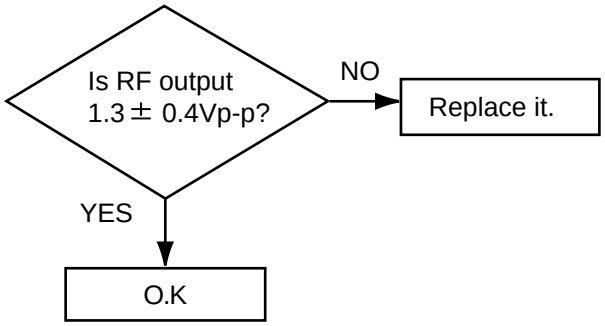
■Tracking section


When the disc is rotated at first:
Approx. 1.2V
Is the tracking error signal output at IC501 "11"?
YES
Check the circuit in the vicinity of IC501 pins "2"~"12".
YES
Check the pickup and its connections
YES
Check IC521.

Maintenance of laser pickup

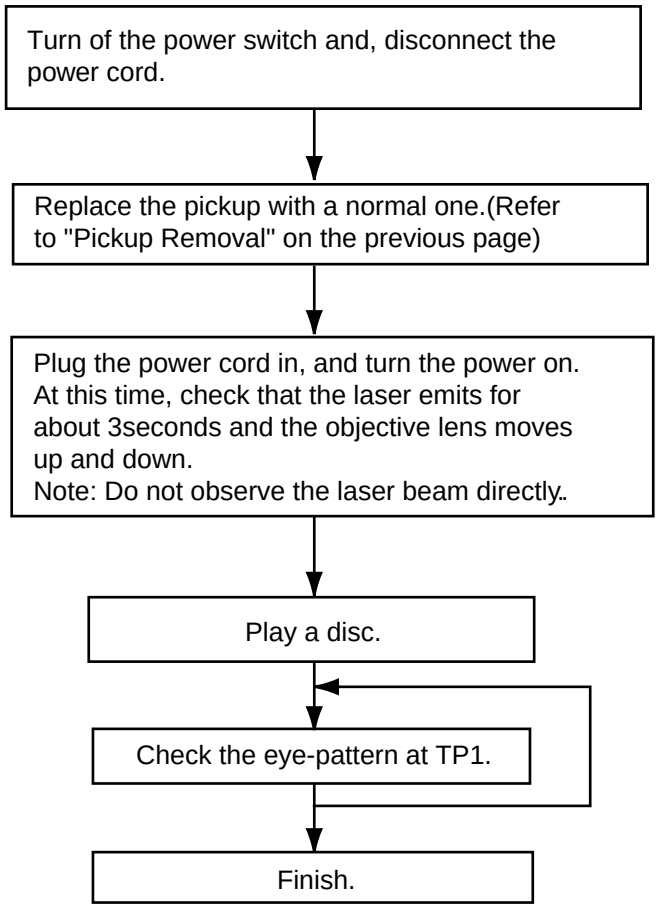
(1) Cleaning the pickup lens
Before you replace the pickup,please try to clean the lens with a alcohol soaked cotton swab.

(2) Life of the laser diode
When the life of the laser diode has expired. the following symptoms will appear.
(1) The level of RF output (EFM output:amplitude of eye patterrn) will be low.



Replacement of laser pickup

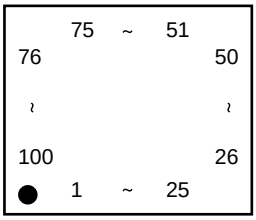
(3) Semi-fixed resistor on the APC PC board
The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power.Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.


Turn of the power switch and, disconnect the power cord.
Replace the pickup with a normal one.(Refer to "Pickup Removal" on the previous page)
Plug the power cord in, and turn the power on. At this time, check that the laser emits for about 3seconds and the objective lens moves up and down.
Note: Do not observe the laser beam directly.
Play a disc.
Check the eye-pattern at TP1.
Finish.

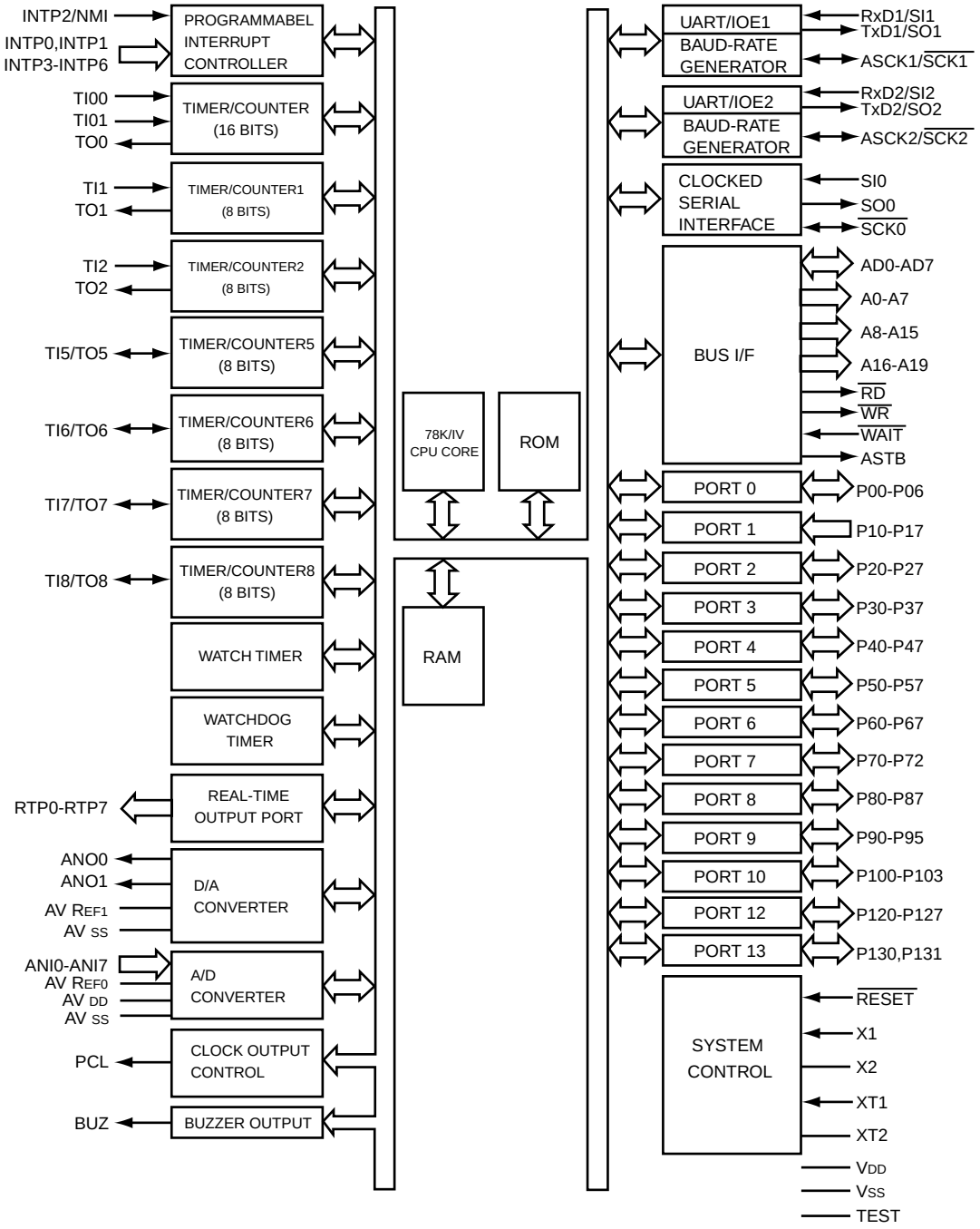
Description of major ICs

■UPD784215AGC143(IC701):MAIN CPU

1.Pin layout



2.Block diagram



UPD784215AGC143(1/2)

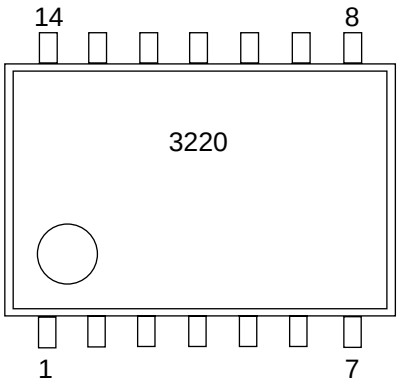
Pin No.	Symbol	I/O	Function
1	NC	O	Non connected
2	NC	O	Non connected
3	SW2	I	Detection switch of CD mechanism
4	PSW	I	CD mecha position setting SW
5	LM	O	Loading motor control signal output
6	MOTOR SEL	O	Loading /feed motor selecting output
7	NC	O	Non connected
8	ANT CONT	O	Antenna remote output
9	VDD	-	5V connection
10	X2	-	Sub-clock 32.738MHz
11	X1	I	Sub-clock 32.738MHz
12	VSS	-	GND connection
13	XT2	-	Sub-clock 12.5MHz
14	XT1	I	Sub-clock 12.5MHz
15	RESET	I	Reset detection terminal
16	SW1	I	Detection switch of CD mechanism
17	BUSINT	I	J-BUS signal interrupt input
18	PS2	I	POWER SAVE2 BACK UP synchronization. It is H input and stop mode.
19	NC	O	Non connected
20	NC	O	Non connected
21	NC	O	Non connected
22	REMOCON	I	Remote control signal input
23	AVDD	-	5V connction
24	AVREF0	-	5V connection
25	VOL1	I	Input for rotation volume detection pulse judgment to relation V1
26	VOL2	I	Input for rotation volume detection pulse judgment to relation V2
27	KEY0	I	Key control signal input 0
28	KEY1	I	Key control signal input 1
29	KEY2	I	Key control signal input 2
30	LEVEL	I	Level meter input
31	PULL DOWN	I	Pul down
32	SM	I	S.METER level input
33	AVSS	-	GND connection
34	NC	O	Non connected
35	NC	O	Non connected
36	AVREF	-	5V connection
37	BUSSI	I	J-BUS data input
38	BUSSO	O	J-BUS data output
39	BUSSCK	I/O	J-BUS clock I/O
40	BUSI/O	I/O	J-BUS data I/O terminal.
41	LCDDA	O	Data output for LCD driver.
42	LCDCK	O	Clock output for LCD driver.
43	LCDCE	O	Chipenable output to LCD driver
44	BUZZER	O	Buzzer output
45	NC	O	Non connected
46	NC	O	Non connected
47	NC	O	Non connected
48	OPEN	O	CD tray open control signal output
49	NC	O	Non connected
50	NC	O	Non connected

UPD784215AGC143(2/2)

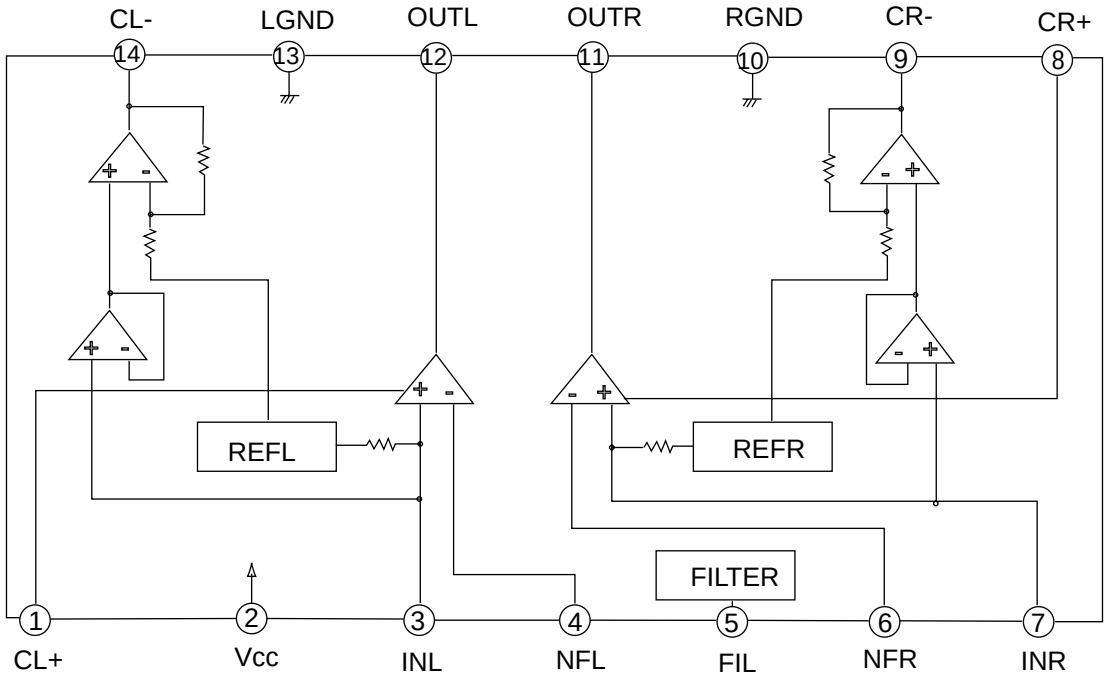
Pin No.	Symbol	I/O	Function
51	NC	O	Non connected
52	NC	O	Non connected
53	SD/ST	I	Station detector and stereo signal input. It is H and there is a bureau.It is L and a stereo.
54	NC	O	Non connected
55	MONO	O	Monaural ON/OFF switch output. At the time of the MONO ON :H.
56	NC	O	Non connected
57	NC	O	Non connected
58	NC	O	Non connected
59	NC	O	Non connected
60	NC	O	Non connected
61	DETACH	I	Detach signal input. It is L of 200ms or more and an operatio mode. H:POWER SAVE
62	NC	O	Non connected
63	SEEK/STOP	O	Auto seek stop switch output. At SEEK:H. At STOP:L
64	NC	O	Non connected
65	FM/AM	O	FM,AM switch output
66	PLLCE	O	CE output for IC control for PLL
67	PLLDO	O	Data output for IC control for PLL
68	PLLCLK	O	Clock output for IC control PLL
69	PLLDI	I	Data input for IC control for PLL
70	TELMUTE	I	Telephone mute detection input. It is L or H and MUTE(ACTIVE depends on the PSM setting)
71	NC	O	Non connected (ex:AMP-KILL output)
72	VSS	-	GND connection
73	DIMIN	I	Dimmer detection input. At L:dimmer ON.
74	PS1	I	POWER SAVE 1. ACC and syschronization POWER SAVE : L. At operation:H
75	POWER	O	POWER ON/OFF switch outut. At POWER ON:H
76	CDON	O	The CD power supply control signal output. At CD :H
77	MUTE	O	Mute output. At mute ON:L
78	NC	O	Non connected
79	NC	O	Non connected
80	NC	O	Non connected
81	VDD	-	5V connection
82	NC	O	Non connect
83	VOLDA	O	Data output by which IC for electronic volume is controlled
84	VOLCL	O	Clock output by which IC for electronic volume is controlled
85	EVOLCE	O	E-volume output
86	SUB.MUTE	O	Mute control putput for subwoofer
87	SUB.CE	O	CE output for subwoofer
88	NC	O	Non connected
89	STAGE2	I	L: for 780J H: for 8250J
90	STAGE1	I	H:For 991R / L:For 911R
91	BUCK	O	Clock output for data communication with CDLSI
92	CCE	O	CE output for data communication with CDLSI
93	RST	O	CDLSI reset signal output
94	TEST	-	connects GND with 10k Ω pull down (For flash switch)
95	BUS0	I/O	Data communication input output port 0 with CDLSI
96	BUS1	I/O	Data communication input output port 1 with CDLSI
97	BUS2	I/O	Data communication input output port 2 with CDLSI
98	BUS3	I/O	Data communication input output port 3 with CDLSI
99	NC	O	Non connected
100	CD-RW	-	RF gain control L=CD-RW, H= CD-DA

■ BA3220FV-X (IC341,IC441) : Line out amp

1.Pin layout

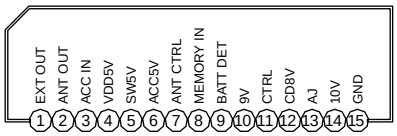


2.Block diagram

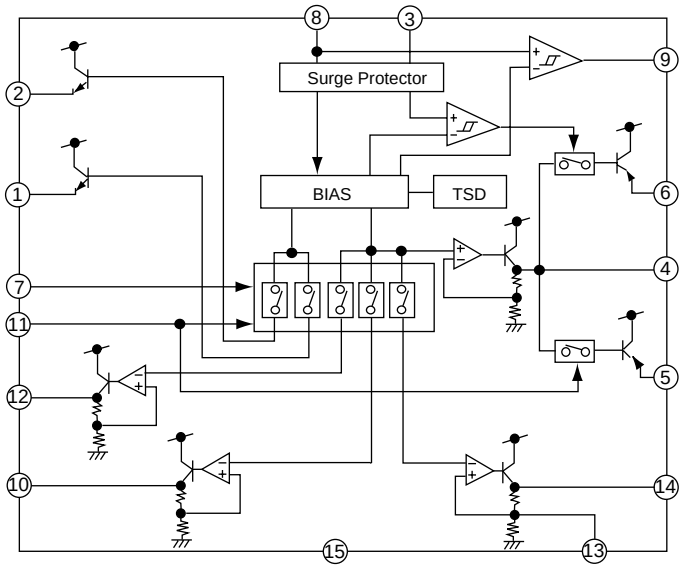


■ HA13164 (IC961) : Regulator

1.Pin layout



2.Block diagram



UNIT R:Ω
C:F

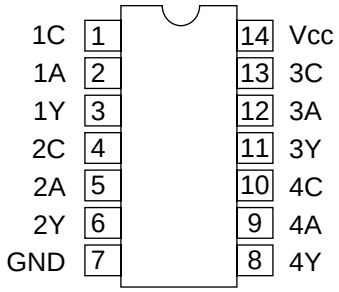
note1) TAB (header of IC)
connected to GND

3.Pin function

Pin No.	Symbol	Function
1	EXT OUT	Output voltage is VCC-1 V when M or H level applied to CTRL pin.
2	ANT OUT	Output voltage is VCC-1 V when M or H level to CTRL pin and H level to ANT-CTRL.
3	ACC IN	Connected to ACC.
4	VDD 5V	Regular 5.7V.
5	SW5V	Output voltage is 5V when M or H level applies to CTRL pin.
6	ACC5V	Output for ACC detector.
7	ANT CTRL	L:ANT output OFF , H:ANT output ON
8	MEMORY IN	Connected to VCC.
9	BATT DET	Low battery detect.
10	9V	Output voltage is 9V when M or H level applied to CTRL pin.
11	CTRL	L:BIAS OFF, M:BIAS ON, H:CD ON
12	CD8V	Output voltage is 8V when H level applied to CTRL pin.
13	AJ	Adjustment pin for ILM output voltage.
14	10V	Output voltage is 10V when M or H level applies to CTRL pin.
15	GND	Connected to GND.

■ HD74HC126FP-X (IC771) : Buffer

1.Terminal layout

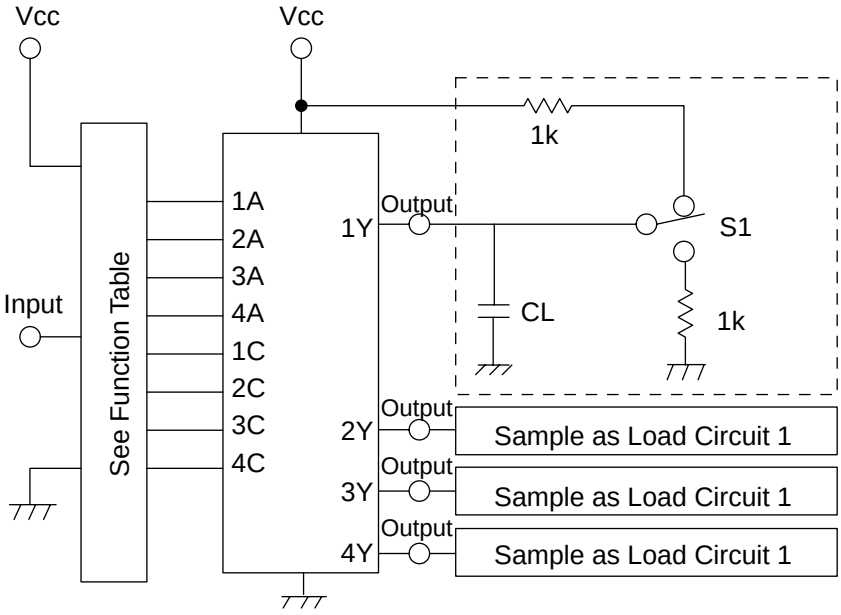


3.Pin function

Input		Output
C	A	Y
L	X	Z
H	L	H
H	H	L

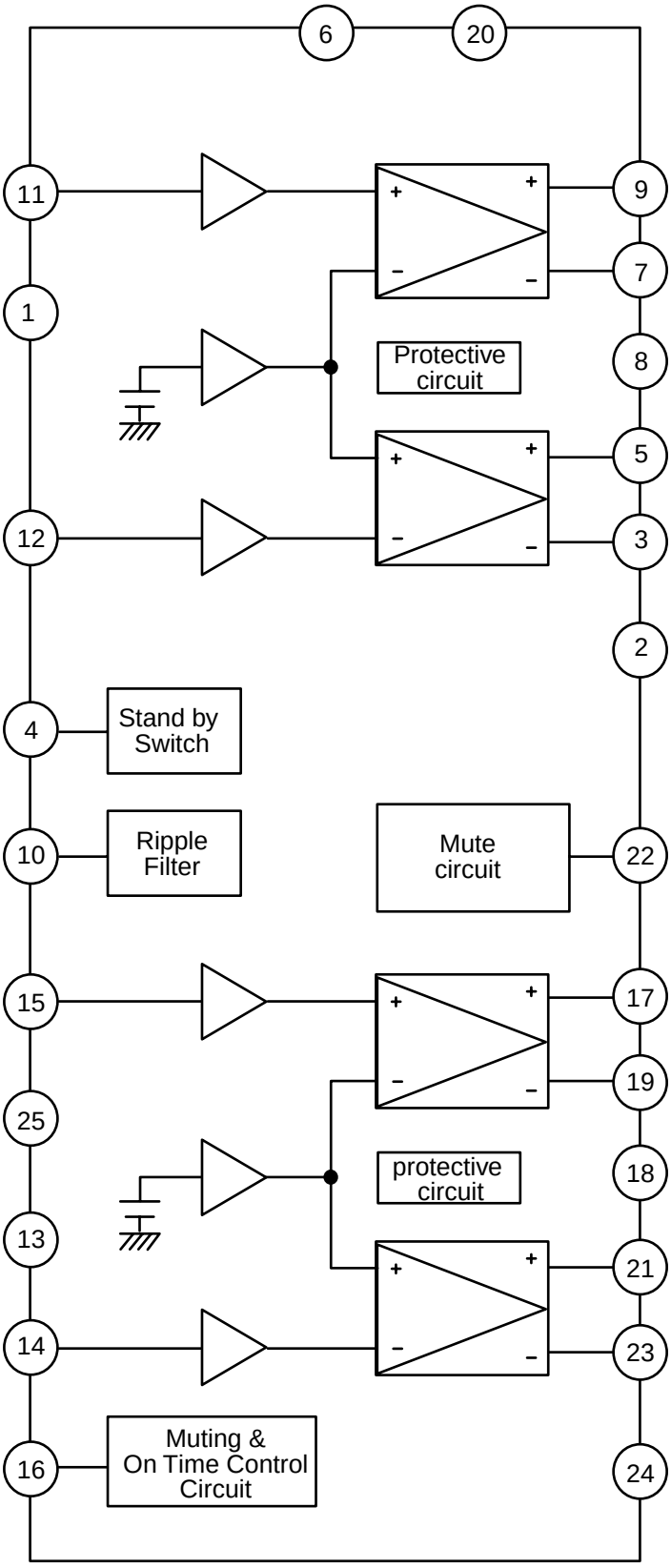
Note: H : High
L : Low
X : H and L
Z : H.L.X

2.Block diagram

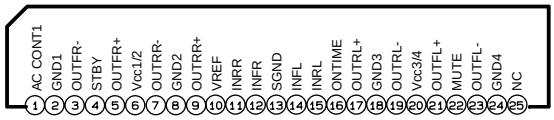


■LA47503(IC351):Power amp.

1.Terminal layout



2.Terminal layout



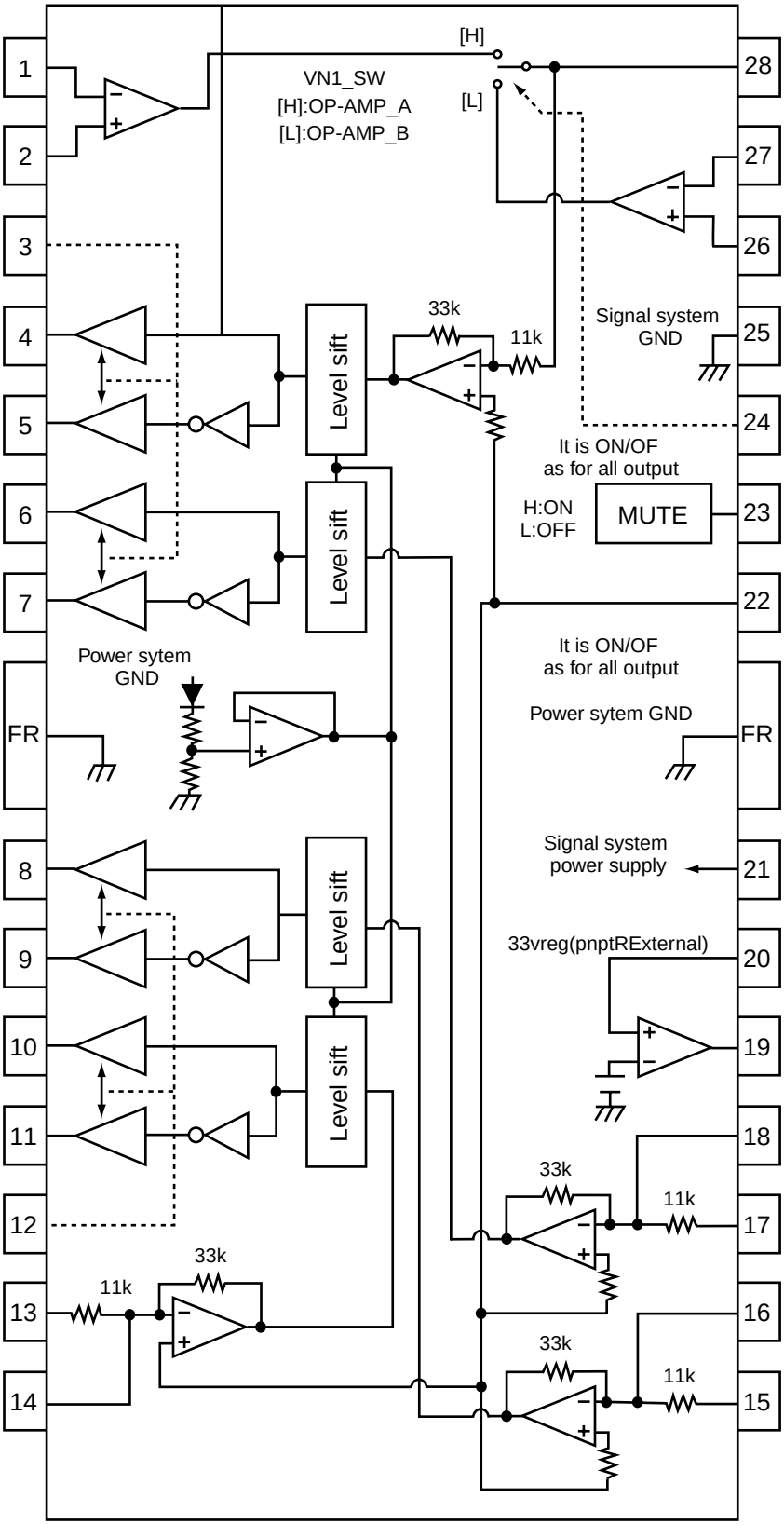
3.Pin function

LA47503

Pin No.	Symbol	Function
1	AC CONT1	Header of IC
2	GND1	Power GND
3	OUTFR-	Outpur(-) for front Rch
4	STBY	Stand by input
5	OUTFR+	Output (+) for front Rch
6	Vcc1/2	Power input
7	OUTRR-	Output (-) for rear Rch
8	GND2	Power GND
9	OUTRR+	Output (+) for rear Rch
10	VREF	Ripple filter
11	INRR	Rear Rch input
12	INFR	Front Rch input
13	SGND	Signal GND
14	INFL	Front Lch input
15	INRL	Rear Lch input
16	ONTIME	Power on time control
17	OUTRL+	Output (+) for rear Lch
18	GND3	Power GND
19	OUTRL-	Output (-) for rear Lch
20	Vcc3/4	Power input
21	OUTFL+	Output (+) for front
22	MUTE	Muting control input
23	OUTFL-	Output (-) for front
24	GND4	Power GND
25	NC	No connection

■ LA6579H-X(IC561):CD driver

1.Terminal layout



LA6579H

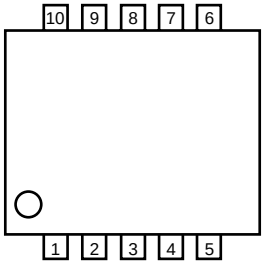
Pin No	Symbol	Description
1	VIN1-A	CH1 input AMP_A reversing input.
2	VIN1+A	CH1 input AMP_A non-reversing input.
3	VCCP1	CH1 and CH2 power steps power supply.
4	VO1+	CH1 output terminal (+)
5	VO1-	CH1 output terminal (-)
6	VO2+	CH2 output terminal (+)
7	VO2-	CH2 output terminal (-)
8	VO3+	CH3 output terminal (+)
9	VO3-	CH3 output terminal (-)
10	VO4+	CH4 output terminal (+)
11	VO4-	CH4 output terminal (-)
12	VCCP2	CH3 and CH4 power steps power supply.
13	VIN4	CH4 input terminal
14	VIN4G	CH4 input terminal (for gain adjustment)
15	VIN3	CH3 input terminal
16	VIN3G	CH3 input terminal (for gain adjustment)
17	VIN2	CH2 input terminal
18	VIN2G	CH2 input terminal(for gain adjustment)
19	REGIN	External PNP transistor base connection.
20	3.3VREG	3.3VREG output terminal and external PNP transistor collector connection.
21	VCCS	Signal system power supply
22	VREFIN	Standard voltage impression terminal
23	MUTE	Output ON/OFF terminal
24	VIN1_SW	CH1 input OP_AMP switch terminal
25	S_GND	Signal system GND.
26	VIN1+B	CH1 AMP_B non-reversing input terminal
27	VIN1-B	CH1 AMP_B reversing input terminal
28	VIN1	CH1 input terminal and input OP_AMP output terminal.

∗ 1 Frame (FR) at the center becomes system GND (P-GND) power.
Please give as the lowest potential with signal system GND (S-GND).

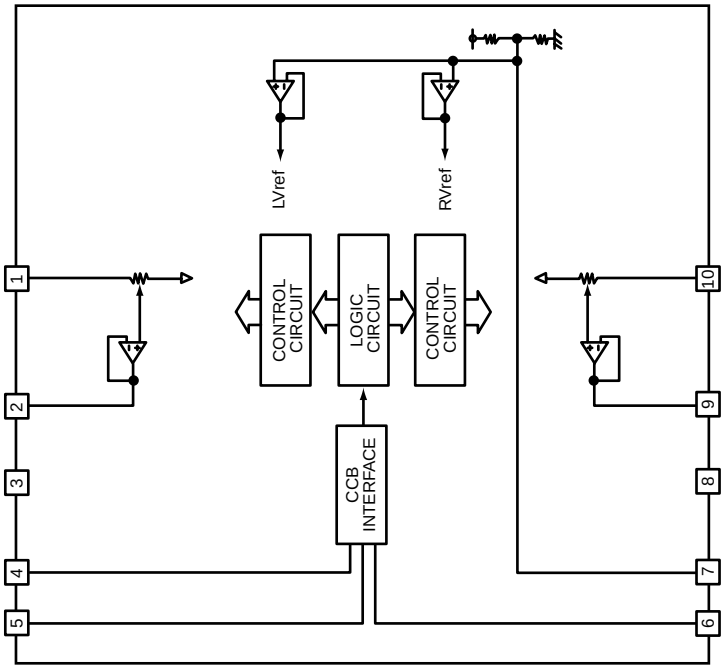
∗ 2 Be short-circuited of VCC_S (signal system power supply)
and VCCP1 and VCCP2 (output steps power supply) on the outside.

■ LC75344M-X(IC252):Sub woofer

1.Terminal layout



2.Block diagram

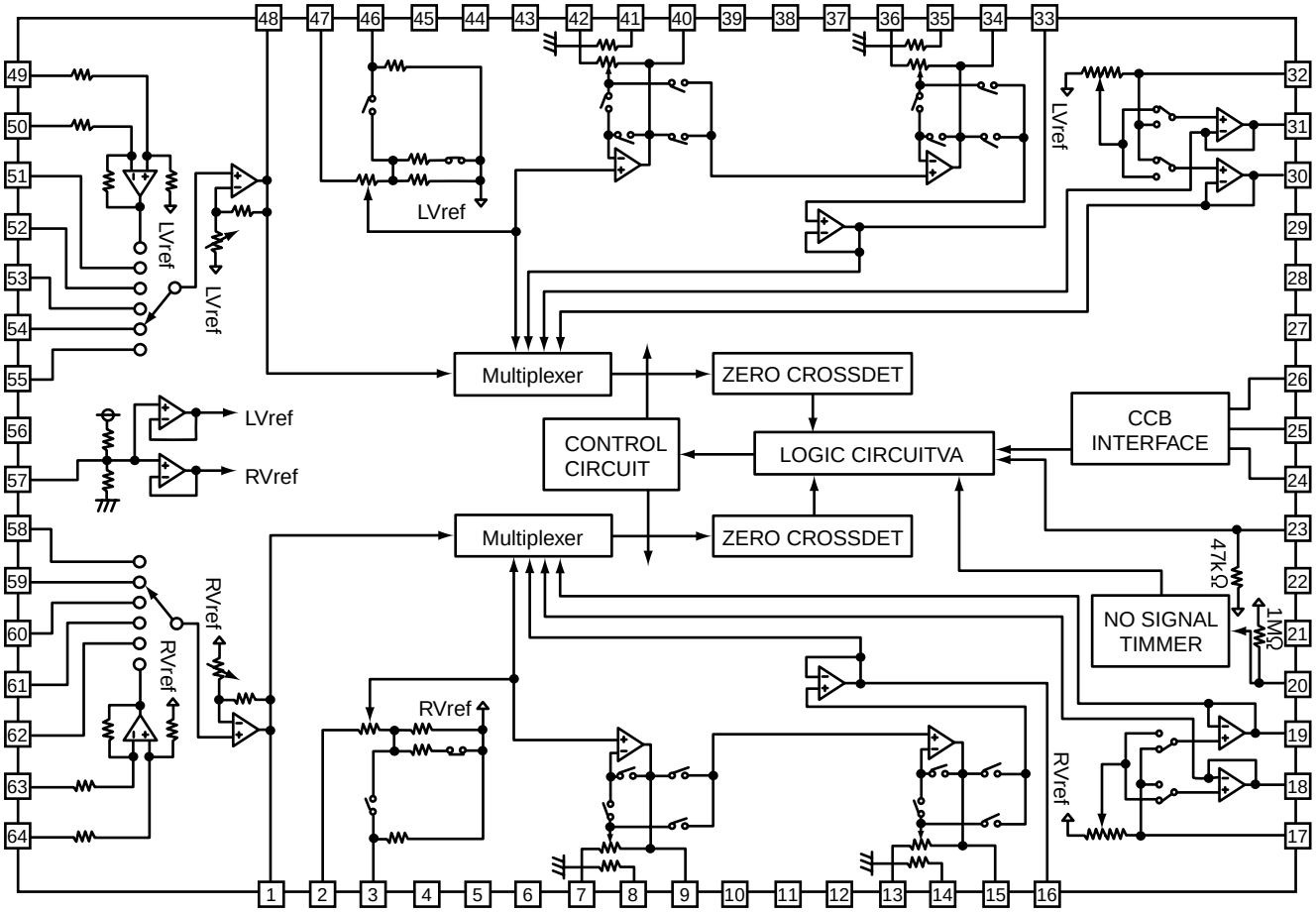


3.Pin function

Pin No.	Symbol	Function
1	LIN	Input signal connections
2	LOUT	Volume output
3	VDD	Power supply
4	DI	Serial data and clock inputs used for IC control
5	CL	
6	CE	Chip enable Data is writen to the internal latch when this pin goes from high to low. The internal analog switches operate at this point. Data transfer is enabled when this pin is high.
7	Vref	Connection to the 0.5 x VDD voltage generator circuit used as the analog signal ground. To a power supply ripple countermeasure,application must connect a capacitor of about 10 μF between this pin and AVSS(VSS).
8	VSS	Ground
9	ROUT	Volume output
10	RIN	Input signal connections

■ LC75412W(IC301):E.VOLUME

1.Terminal layout & block daiagram



2.Function

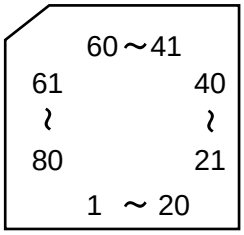
Pin No.	Symbol	Function
54 53 52 51 55 59 60 61 62 58	L1 L2 L3 L4 L6 R1 R2 R3 R4 R6	Single end input terminal
50 49 63 64	L5M L5P R5M R5P	Differential motion input terminal
48 1	LSELO RSELO	Input selector output terminal
46 3	LCT RCT	Then terminal for roudness.CR for a high region amends is connected for LCT(RCT) and LVRIN(RVRIN),and CR for a low region amends is connected between LCT(RCT) and GND.
47 2	LVRIN RVRIN	Volume + equalizer input terminal.

LC75412W

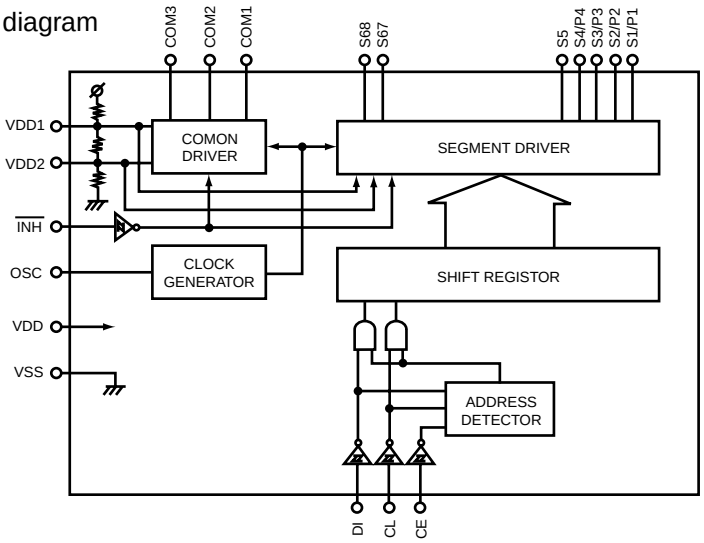
Pin No.	Symbol	Function
42 41 40 7 8 9	LF1C1 LF1C2 LF1C3 RF1C1 RF1C2 RF1C3	The capacitor connection terminal of the filter composition for the F1 stap of the equalizer. LF1C1(RF1C1)~LF1C2(RF1C2),Connect the capacitor for LF1C2(RF1C2)~LF1C3(RF1C3).
36 35 34 13 14 15	LF3C1 LF3C2 LF3C3 RF3C1 RF3C2 RF3C3	Capacitor connection terminal of filter composition for F3 strap of equalizer. Connect the capacitor for LF3C1(RF3C1)~ LF3C2(RF3C2) LF3C2(RF3C2)~LF3C3(RF3C3).
45 44 43 39 38 37 21 10 11 12 5 4 6	NC	No connected
28	TEST	The terminal only fot the test of LSI.Connects with GND and uses usually.
33 16	LTOUT RTOUT	Equalizer output terminal.
32 17	LFIN RFIN	The fader block input terminal. Drive by low impedance.
31 30 18 19	LFOUT LROUT RFOUT RROUT	The fader output terminal.A rear reception desk side / side can be separately narrowed respectively. L/R of the amount of attenuation is the same.
57	Vref	VDD/2voltage generation part. Connect the capacitor of about several 10μF as a counter measure for ripple of power supply between Vref~AVSS for (VSS).
56	VDD	Power supply terminal.
27	DVSS	System logic grand terminal.
29 22	LAVSS RAVSS	Analog grand terminal.
23	MUTE	External control mute terminal. When this terminal is made VSS level,fader volume block is set in compulsory- ∞
20	TIM	Timer terminal at no signal of 0 crossing circuit.
26 25	CL DI	Cereal data and clock input terminal for control.
24	CE	chip enable terminal. [H]data is written in an internal latch in the timing which becomes → [L]and an analog each switch moves.[H] The data transfer becomes enable at the level.

■ LC75873NW(IC601):LCD Driver

1.Pin layout



2.Block diagram

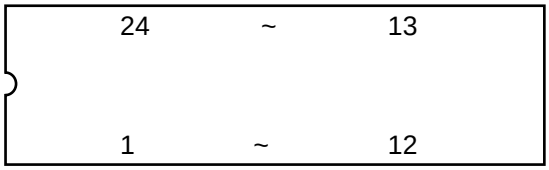


3.Pin function

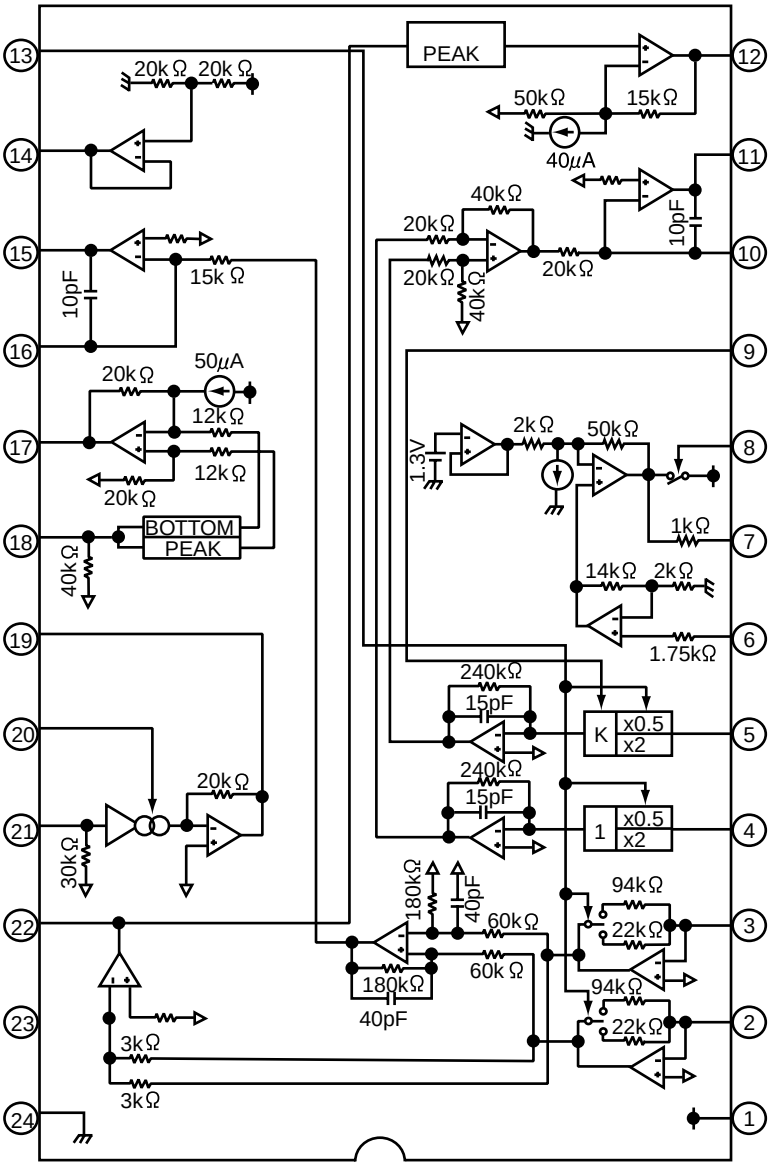
Pin No.	Pin name	I/O	Description
79,80 1 to 66	DIMMER,S1 S2 to S66	O	Segment outouts for displaying the display data transferred by serial data input. The S1/P1 to S4/P4 pins can be used as general-purpose output ports under serial data control.
67 68 69	COM1 COM2 COM3	O	Common driver outputs. The frame frequency f0 is given by : f0 = (FOSC/384)Hz.
74	OSC	I/O	Oscillator connection An oscillator circuit is formed by connecting an external resistor and capacitor to this pin.
76 77 78	CE CL DI	I I I	Serial data transfer inputs. Connected to the controller. CE:Chip enable CL:Synchronization clock DI:Transfer data
75	$\overline{\text{INH}}$	I	Display off control input ・$\overline{\text{INH}}$= "L"(VSS) ･･･ Display forced off S1/P1 to S4/P4 = "L" (These pins are forcibly set to the segment output port function and held at the low level.) S5 to S68 = "L" COM1 to COM3"L" ・$\overline{\text{INH}}$ = "H"(HDD) ･･･ Display on However, serial data transfer is possible when the display is forced off by this pin.
71	VDD1	I	Used for applying the LCD drive 2/3 bias voltage externally. Must be connected to VDD2 when a 1/2 bias drive scheme is used.
72	VDD2	I	Used for applying the LCD drive 1/3 bias voltage externally. Must be connected to VDD1 when a 1/2 bias drive scheme is used.
70	VDD	-	Power supply connection. Provide a voltage of between 3.0 and 6.0V.
73	VSS	-	Power supply connection. Connect to ground.

■ TA2157FN-X(IC501):RF amp

1.Terminal layout



2.Block diagram



PIN / VCTRLPIN	SEL (APC SW)	TEB (TE BAL)	RFGC (AGC Gian)	TEB (TE BAL)
VCC	APC ON	-50%	+12dB	Normal mode (0dB)
HiZ	APC ON	0%	+6dB	Normal mode (0dB)
GND	APC OFF (LDO=H)	+50%	0dB	CD-RW mode (+12dB)

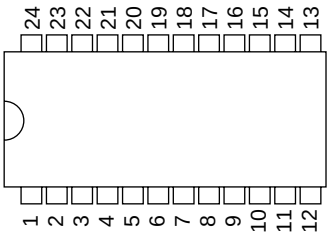
3.Pin function

TA2175FN-X

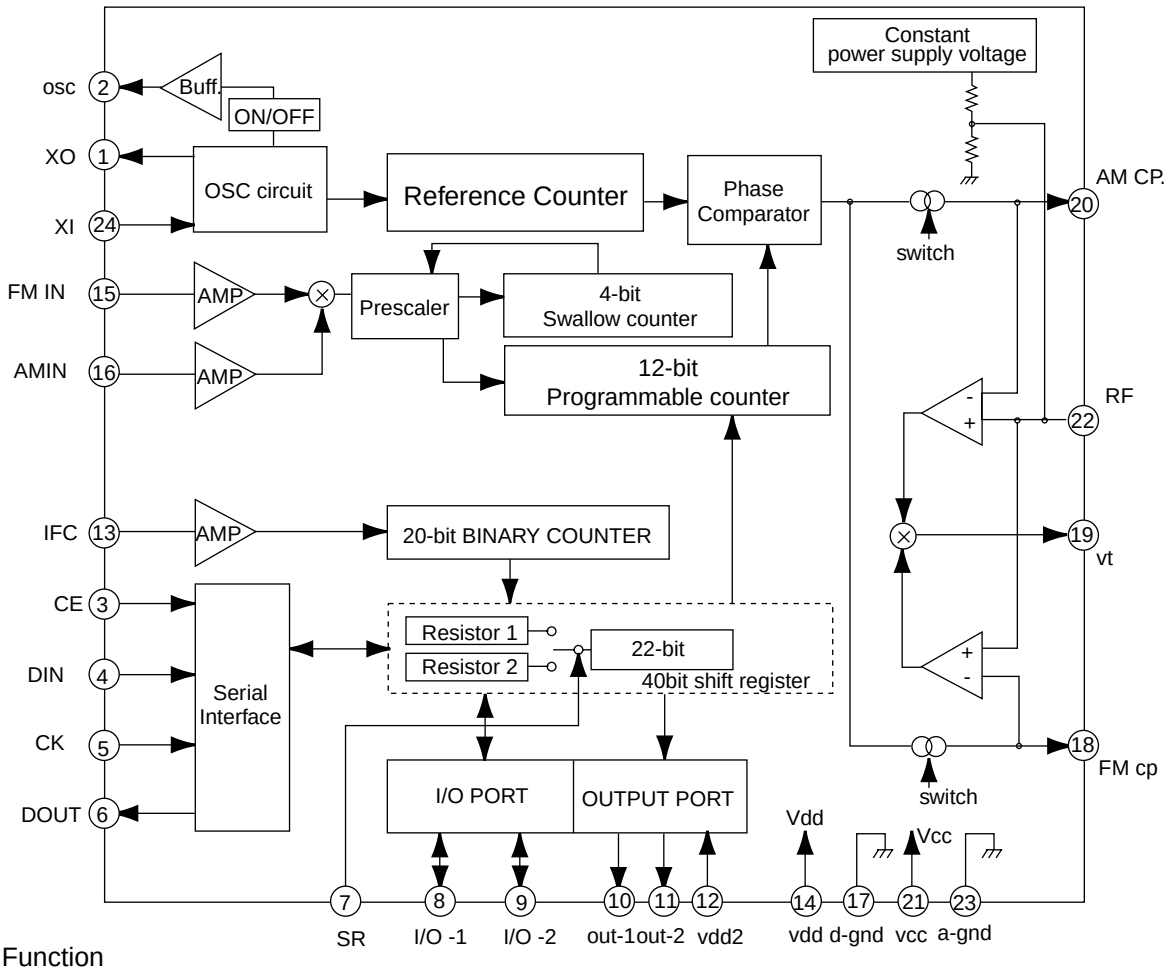
<table>
<tr><th>Pin No.</th><th>Symbol</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>VCC</td><td>-</td><td>3.3V power supply pin</td></tr>
<tr><td>2</td><td>FNI</td><td>I</td><td>Main-beam amp input pin</td></tr>
<tr><td>3</td><td>FPI</td><td>I</td><td>Main-beam amp input pin</td></tr>
<tr><td>4</td><td>TPI</td><td>I</td><td>Sub-beam amp input pin</td></tr>
<tr><td>5</td><td>TNI</td><td>I</td><td>Sub-beam amp input pin</td></tr>
<tr><td>6</td><td>MDI</td><td>I</td><td>Monitor photo diode amp input pin</td></tr>
<tr><td>7</td><td>LDO</td><td>O</td><td>Laser diode amp output pin</td></tr>
<tr><td>8</td><td>SEL</td><td>I</td><td>APC circuit ON/OFF control signal, laser diode (LDO) control signal input or bottom/peak detection frequency change pin.
<table>
<tr><th>SEL</th><th>APC circuit</th><th>LCD</th></tr>
<tr><td>GND</td><td>OFF</td><td>Connected VCC through 1kΩ resistor</td></tr>
<tr><td>Hiz</td><td>ON</td><td>Control signal output</td></tr>
<tr><td>VCC</td><td>ON</td><td>Control signal output</td></tr>
</table></td></tr>
<tr><td>9</td><td>TEBC</td><td>I</td><td>Tracking error balance adjustment signal input pin
Adjusts TE signal balance by ellminating carrier component from PWM signal (3-state output,PWM carrier = 88.2kHz) output from TC94A14F/FA TEBC pin using RC-LPF and inputting DC.
TEBC input voltage:GND~VCC</td></tr>
<tr><td>10</td><td>TEN</td><td>I</td><td>Tracking error signal genaration amp negative-phase input pin</td></tr>
<tr><td>11</td><td>TEO</td><td>O</td><td>Tracking error signal generation amp output pin.
Combining TEO signal RFRP signal with TC94A14F/FA configures tracking search system.</td></tr>
<tr><td>12</td><td>RFDC</td><td>O</td><td>RF signal peak detection output pin</td></tr>
<tr><td>13</td><td>GVSW</td><td>I</td><td>AGC/FE/TE amp gain change pin
<table>
<tr><th>GVSW</th><th>Mode</th></tr>
<tr><td>GND</td><td>CD-RW</td></tr>
<tr><td>Hiz</td><td rowspan="2">Normal</td></tr>
<tr><td>VCC</td></tr>
</table></td></tr>
<tr><td>14</td><td>VRO</td><td>O</td><td>Reference voltage (VRO) output pin
＊VRO=1/2VCC When VCC=3.3V</td></tr>
<tr><td>15</td><td>FEO</td><td>O</td><td>Focus error signal generation amp output pin</td></tr>
<tr><td>16</td><td>FEN</td><td>I</td><td>Focus error signal generation amp negative-phase input pin</td></tr>
<tr><td>17</td><td>RFRP</td><td>O</td><td>Signal amp output pin for track count
Combining RFRP signal and TEO signal with TC94A14F/FA configures tracking search system.</td></tr>
<tr><td>18</td><td>RFRPIN</td><td>I</td><td>Signal generation amp input pin for track count</td></tr>
<tr><td>19</td><td>RFGO</td><td>O</td><td>RF signal amplitude adjustment amp output pin</td></tr>
<tr><td>20</td><td>RFGC</td><td>I</td><td>RF amplitude adjustment control signal input pin
Adjusts RF signal amplitude by eliminating carrier component from PWM signal (3-state output,PWM carrier=88.2kHz)output fromTC94A14F/14FA RFGC pin using RC-LPF and inputting DC.
＊ RFGC input voltage:GND~VCC</td></tr>
<tr><td>21</td><td>AGCIN</td><td>I</td><td>RF signal amplitude adjustment amp input pin</td></tr>
<tr><td>22</td><td>RFO</td><td>O</td><td>RF signal generation amp output pin</td></tr>
<tr><td>23</td><td>RFN</td><td>I</td><td>RF signal generation amp input pin</td></tr>
<tr><td>24</td><td>GND</td><td>-</td><td>GND pin</td></tr>
</table>

■TB2118F-X (IC21) : PLL

1.Terminal Layout



2.Block diagram

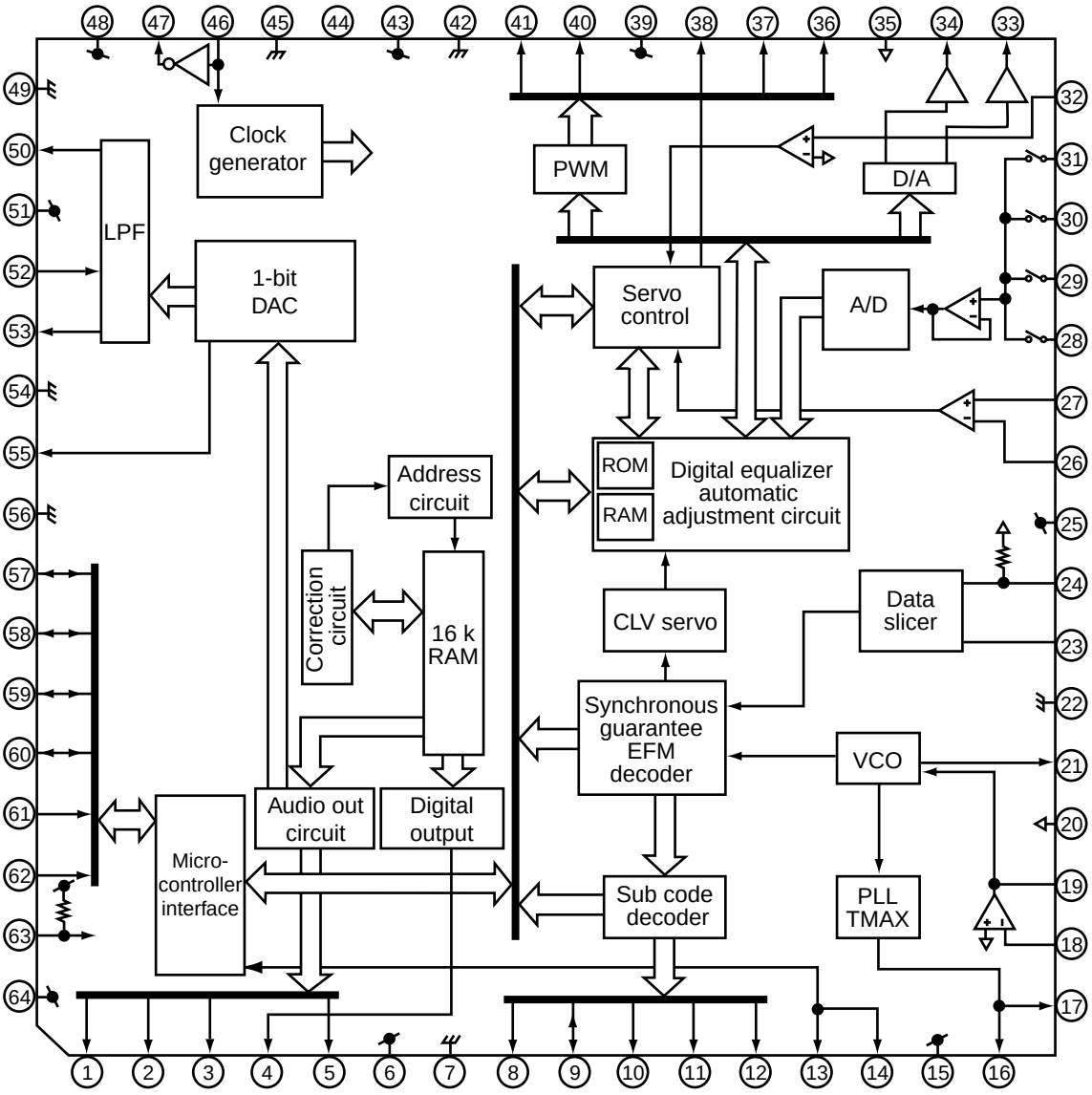


3.Pin Function

Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	XOUT	O	Crystal oscillator pin	13	IFC	I	IF signal input
2	OSC	-	Non connect	14	VDD	-	Power pins for digital block
3	CE	I	Chip enable input	15	FMIN	I	FM band local signal input
4	DI	I	Serial data input	16	AMIN	I	AM band local signal input
5	CK	I	Clock input	17	DGND	-	Connect to GND (for digital circuit)
6	DOUT	O	Serial data output	18	FMCP	O	Charge pump output for FM
7	SR	O	Register control pin	19	VT	-	Tuning voltage biased to 2.5V.
8	I/O1	I/O	I/O ports	20	AMCP	O	Charge pump output for AM
9	I/O2	I/O	I/O ports	21	VCC	-	Power pins for analog block
10	OUT1	-	Non connect	22	RF	I	Ripple filter connecting pin
11	OUT2	-	Non connect	23	AGND	-	Connect to GND (for analog circuit)
12	VDD2	-	Single power supply for REF. frequency block	24	XIN	I	Crystal oscillator pin

■ TC94A14FA(IC521):DSP&DAC

1.Terminal layout & block daiagram



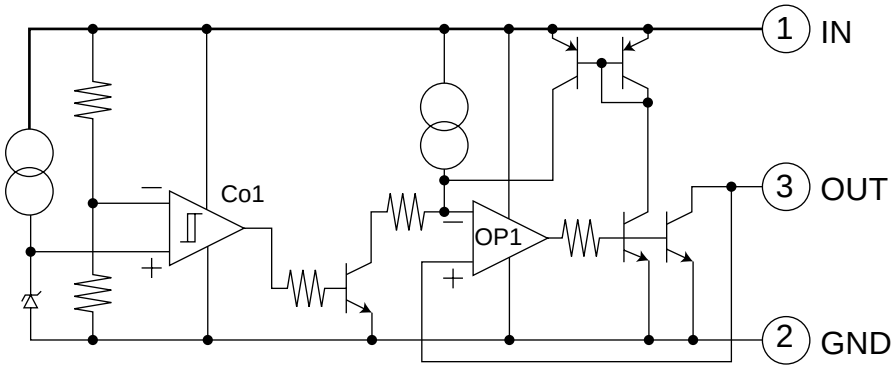
2.Pin function

Pin No	Symbol	I/O	Descroption
1	BCK	O	Bit clock output pin.32fs,48fs,or 64fs selectable by command.
2	LRCK	O	L/R channel clock output pin."L" for L channel and "H" for R channel. Output polarity can be inverted by command.
3	AOUT	O	Audio data output pin. MSB-first or LSB-first selectable by command.
4	DOUT	O	Digital data output pin.Outputs up to double-speed playback.
5	IPF	O	Correction flag output pin. When set to "H", AOUT output cannot be corrected by C2 correction processing.
6	V_{DD3}	-	Digital 3.3V power supply voltage pin.
7	V_{SS3}	-	Digital GND pin.
8	SBOK	O	Subcode Q data CRCC result output pin. "H" level when result is OK.
9	CLCK	O	Subcode P-W data read I/O pin. I/O polarity selectable by command.
10	DATA	O	Subcode P-W data output pin.
11	SFSY	O	Playback frame sync signal output pin.
12	SBSY	O	Subcode block sync signal output pin. "H" level at S1 when subcode sync is detected.
13	HSO	I/O	General-purpose input / output pins.
14	UHSO		Input port at reset.
15	PV_{DD3}	-	PLL-only 3.3V power supply voltage pin.

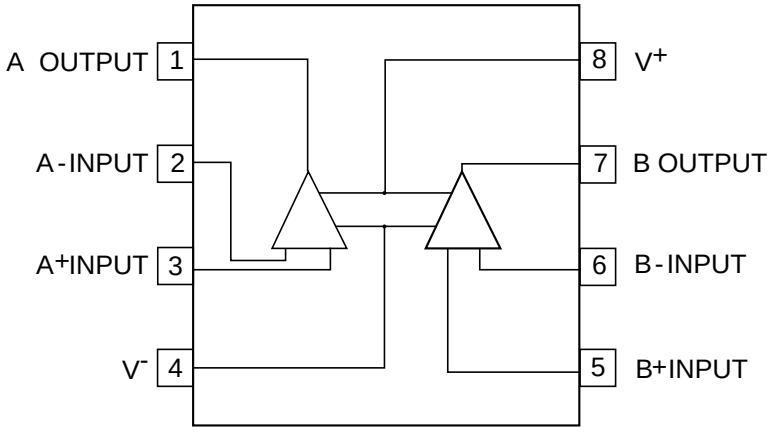
TC94A14FA

<table>
<tr><th>Pin No</th><th>Symbol</th><th>I/O</th><th>Description</th></tr>
<tr><td>16</td><td>PDO</td><td>O</td><td>EFM and PLCK phase difference signal output pin.</td></tr>
<tr><td>17</td><td>TMAX</td><td>O</td><td>TMAX detection result output pin.
<table><tr><th>TMAX Detection Result</th><th>TMAX Output</th></tr><tr><td>Longer than fixed period</td><td>"PVDD3"</td></tr><tr><td>Within fixed period</td><td>"HiZ"</td></tr><tr><td>Shorter than fixed period</td><td>"AVSS3"</td></tr></table></td></tr>
<tr><td>18</td><td>LPFN</td><td>I</td><td>Inverted input pin for PLL LPF amp.</td></tr>
<tr><td>19</td><td>LPFO</td><td>O</td><td>Output pin for PLL LPF amp.</td></tr>
<tr><td>20</td><td>PVREF</td><td>-</td><td>PLL-only VREF pin.</td></tr>
<tr><td>21</td><td>VCOF</td><td>O</td><td>VCO filter pin.</td></tr>
<tr><td>22</td><td>AVSS3</td><td>-</td><td>Analog GND pin.</td></tr>
<tr><td>23</td><td>SLCO</td><td>O</td><td>DAC output pin for data slice level generation.</td></tr>
<tr><td>24</td><td>RFI</td><td>I</td><td>RF signal input pin. Zin selectable by command.</td></tr>
<tr><td>25</td><td>AVDD3</td><td>-</td><td>Analog 3.3V power supply voltage pin.</td></tr>
<tr><td>26</td><td>RFCT</td><td>I</td><td>RFRP signal center level input pin.</td></tr>
<tr><td>27</td><td>RFZI</td><td>I</td><td>RFRP signal zero-cross input pin.</td></tr>
<tr><td>28</td><td>RFRP</td><td>I</td><td>RF ripple signal input pin.</td></tr>
<tr><td>29</td><td>FEI</td><td>I</td><td>Focus error signal input pin.</td></tr>
<tr><td>30</td><td>SBAD</td><td>I</td><td>Sub-beam adder signal input pin.</td></tr>
<tr><td>31</td><td>TEI</td><td>I</td><td>Tracking error input pin. Inputs when tracking servo is on.</td></tr>
<tr><td>32</td><td>TEZI</td><td>I</td><td>Tracking error signal zero-cross input pin.</td></tr>
<tr><td>33</td><td>FOO</td><td>O</td><td>Focus equalizer output pin.</td></tr>
<tr><td>34</td><td>TRO</td><td>O</td><td>Tracking equalizer output pin.</td></tr>
<tr><td>35</td><td>VREF</td><td>-</td><td>Analog reference power supply voltage pin.</td></tr>
<tr><td>36</td><td>RFGC</td><td>O</td><td>RF amplitude adjustment control signal output pin.</td></tr>
<tr><td>37</td><td>TEBC</td><td>O</td><td>Tracking balance control signal output pin.</td></tr>
<tr><td>38</td><td>SEL</td><td>O</td><td>APC circuit ON/OFF signal output pin. At laser on, high impedance with UHS="L",
H output with UHS="H".</td></tr>
<tr><td>39</td><td>AVDD3</td><td>-</td><td>Analog 3.3V power supply voltage pin.</td></tr>
<tr><td>40</td><td>FMO</td><td>O</td><td>Feed equalizer output pin.</td></tr>
<tr><td>41</td><td>DMO</td><td>O</td><td>Disc equalizer output pin.</td></tr>
<tr><td>42</td><td>VSS3</td><td>-</td><td>Digital GND pin.</td></tr>
<tr><td>43</td><td>VDD3</td><td>-</td><td>Digital 3.3V power supply voltage pin.</td></tr>
<tr><td>44</td><td>TESIN</td><td>I</td><td>Test input pin. Normally, fixed to "L".</td></tr>
<tr><td>45</td><td>XVSS3</td><td>-</td><td>System clock oscillator GND pin.</td></tr>
<tr><td>46</td><td>XI</td><td>I</td><td>System clock oscillator input pin.</td></tr>
<tr><td>47</td><td>XO</td><td>O</td><td>System clock oscillator output pin.</td></tr>
<tr><td>48</td><td>XVDD3</td><td>-</td><td>System clock oscillator 3.3V power supply voltage pin.</td></tr>
<tr><td>49</td><td>DVSS3R</td><td>-</td><td>DA converter GND pin.</td></tr>
<tr><td>50</td><td>RO</td><td>O</td><td>R-channel data forward output pin.</td></tr>
<tr><td>51</td><td>DVDD3</td><td>-</td><td>DA converter 3.3V power supply pin.</td></tr>
<tr><td>52</td><td>DVR</td><td>-</td><td>Reference voltage pin.</td></tr>
<tr><td>53</td><td>LO</td><td>O</td><td>L-channel data forward output pin.</td></tr>
<tr><td>54</td><td>DVSS3L</td><td>-</td><td>DA converter GND pin.</td></tr>
<tr><td>55</td><td>ZDET</td><td>O</td><td>1 bit DA converter zero detection flag output pin.</td></tr>
<tr><td>56</td><td>VSS5</td><td>-</td><td>Microcontroller interface GND pin.</td></tr>
<tr><td>57
58
59
60</td><td>BUS0
BUS1
BUS2
BUS3</td><td>I/O</td><td>Microcontroller interface data I/O pins.</td></tr>
<tr><td>61</td><td>BUCK</td><td>I</td><td>Microcontroller interface clock input pin.</td></tr>
<tr><td>62</td><td>/CCE</td><td>I</td><td>Microcontroller interface chip enable signal input pin.At "L", BUS0 to BUS3 are active.</td></tr>
<tr><td>63</td><td>/RST</td><td>I</td><td>Reset signal input pin. At reset, "L".</td></tr>
<tr><td>64</td><td>VDD5</td><td>-</td><td>Microcontroller interface 5V power supply pin.</td></tr>
</table>

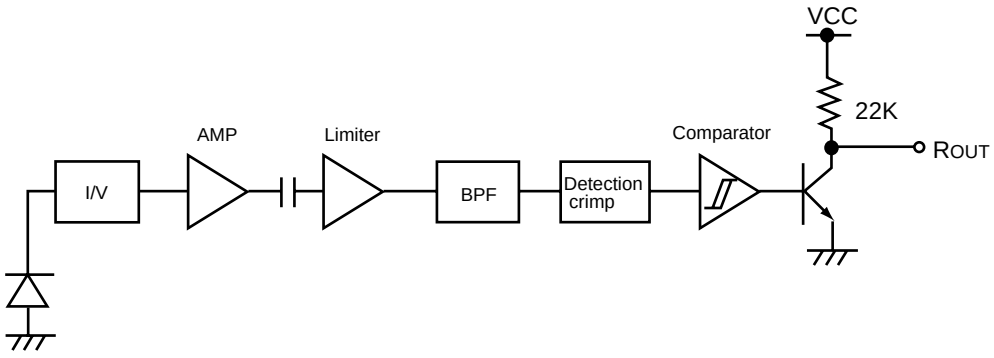
■ IC-PST600M/G/-W (IC702) : System reset



■ NJM4565M-WE (IC251) : Ope. amp



■ RPM7138-V4(IC602):Remote control receiver



KD-SX8250/KD-SX780

VICTOR COMPANY OF JAPAN, LIMITED
MOBILE ELECTRONICS DIVISION
PERSONAL & MOBILE NETWORK BUSINESS UNIT. 10-1,1Chome,Ohwatari-machi,Maebashi-city,371-8543,Japan

200202

(No.49690)